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No. 21

THE SUGAR REFINING INDUSTRY IN THE UNITED STATES

Its Development and Present Condition

BY
PAUL L. VOGT, Ph.D.

Published for the University
PHILADELPHIA
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THE JOHN C. WINSTON CO., Selling Agents
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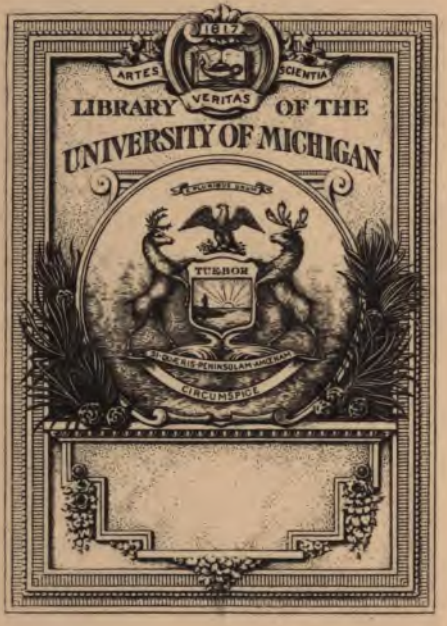
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PREFACE.

In the following pages the writer has attempted to trace the steps in the development of the sugar refining industry which made the appearance of a combination of producers inevitable. He has also endeavored to show how, when the combination appeared, its continued existence depended upon the extension of its influence, not only in the refining of cane sugar, but into the production of raw material and into the sale of its product, the whole movement tending toward the unification of the sugar industry from the growth of raw sugar to the placing of the finished product in the hands of the consumer. An attempt has also been made to indicate the relation of the combination to other factors in the economic system with which it has come into direct business relations. Special effort has been made to bring together such facts as are not readily accessible to the general reader, and topics whose thorough discussion may be easily found are passed over with but brief notice.

The principal sources have been the various investigations of trusts made by national and state governments; the testimony taken by Congressional Committees in relation to the tariff; the *Report of the Industrial Commission,* and other publications of the United States Government. Of the periodicals consulted, the *Weekly Statistical Sugar Trade Journal,* published by Messrs. Willett and

Gray, of New York, and the *Commercial and Financial Chronicle* have been of great value. Mention should also be made of the *American Sugar Industry and Beet Sugar Gazette,* published in Chicago. The thanks of the writer are due to Professor H. R. Seager, of Columbia University, and to Messrs. Willett and Gray, who have read his manuscript and offered many valuable suggestions.

PAUL L. VOGT.

NEW YORK CITY, November, 1907.

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Chapter I.

INTRODUCTION.

§ 1. In the general transition from small-scale, competitive manufacturing industry to large-scale, monopolistic production which has been taking place in all countries where the factory system is found, the evolution of sugar refining[1] affords a fruitful field for study. A thorough knowledge of this particular industry is of great importance for several reasons. In the first place, refined sugar has become a necessity in every household. In the opening years of the last century it was still a luxury found only on the tables of the rich. Then, even in congressional debates, persons seeking popular favor argued for a tax on refined sugar because its burden would fall on the wealthy. Now, its use has become so common that a similar tax is opposed because it falls upon the masses of the people. Again, according to the census of 1890 and of 1900, sugar refining ranked first in importance among the manufacturing industries of the cities of Brooklyn, San Francisco, and New Orleans. In Boston it ranked second in 1890 and first in 1900. As an imported product the value of sugar, in its different forms, has been almost uniformly far in excess of that of any other single group of commodities. The only recent exceptions were during the years 1902 and 1903, when the values of raw and manufactured silk and of fibre materials exceeded that of sugar. Since then sugar

[1]Sugar refining is the final process in the preparation of sugar for consumption. It is brought in a raw state to the refining centers mentioned above and to others where it is remelted, purified, and crystallized. It is then ready for the market. For explanation of grades and standards of measurement see foot-notes, pp. 25, 26, 27.

has again become the most valuable import. As compared with total imports into the United States, the value of sugar has declined from approximately one-sixth of the total during the sixties to about one-eleventh in 1905.

Though, owing to various causes, sugar has failed to hold its rank in value, the total amount imported has continued to increase. In 1880-81, 869,082 tons of sugar were imported; in 1900-01, 1,960,014 tons was the total; and in 1905 the entire importation of sugar from foreign countries and insular possessions was 2,056,092 tons.[2] The consumption of sugar from all sources, including home production, increased from 993,532 tons in 1881 to 2,767,162 tons in 1904. This represented a per capita increase of from 44 pounds in 1881 to 75.3 pounds in 1904.[3] The annual consumption of sugar at the present time is in excess of 6,000,000,000 pounds. At even the wholesale price of 96°[4] centrifugal sugar this vast amount represents an expenditure of almost $260,000,000. Since by far the larger part of this amount goes through the hands of the refiners, it becomes clear what an important position they hold in the industrial system, and why one should know to what extent they can control one of the necessities of life.

§ 2. It is not intended to study the entire sugar situation. Such a task, while profitable, would be too comprehensive for present purposes. The investigation will be limited to the development of the refining industry in the United States. This will exclude, therefore, any extended reference to the situation in Europe. Conditions there must be

[2] Willett and Gray, *Weekly Statistical Sugar Trade Journal*, New York, January 4, 1906.

[3] *Ibid.*, January 4, 1906.

[4] In 1905 the average price of centrifugals was $0.04278 per pound. This makes the value of 6,000,000,000 pounds over $256,000,000. This is exclusive of molasses consumed. Centrifugal sugar is that form from which the molasses has been removed by means of a centrifugal machine. This is the highest grade of raw sugar. See p. 15 for description of process of manufacture.

considered in so far as Europe is a potential or a real source of raw material, in so far as it is an outlet for the surplus of American refineries, and in so far as it is related to the price of the refined product. But the European situation is important only as it enables one to understand thoroughly the conditions of refining in America. It will also be unnecessary to go to any extent into the history of maple and sorghum sugar production. The former has been of steadily declining importance. In 1900 there was a production of but 11,928,770 pounds of maple sugar in the United States. This was little more than one-third of the product in 1890. The largest production was in 1860, when a total of 40,120,205 pounds was reached. In 1900 Vermont, New York and Pennsylvania furnished 80 per cent of the total maple sugar outturn of the country. The maple syrup product in 1900 was 2,056,611 gallons, which was a decrease of 20 per cent from that of 1890. The combined outturn of maple sugar and molasses is very small as compared with a total of 6,000,000,000 pounds of sugar of all kinds consumed in this country. For this reason, and also because it can never become a formidable rival of cane and beet sugar, it is unnecessary to give it any further consideration.

To a less degree the same is true of sorghum. The sorghum plant, which resembles Indian corn in general appearance and growth, was first introduced into this country from China in 1855. Owing to the scarcity of sugar during the Civil War its cultivation for molasses as a substitute for sugar became quite general. The census report for 1860, five years after the introduction of the plant, gives 6,749,123 gallons as the total production of sorghum syrup.[5] In 1870 the production had increased to 16,050,783 gallons, and in 1880 to 28,444,202 gallons. After that year, however, the production declined until,

[5]U. S. *Census* for years mentioned.

in 1900, the total outturn was 16,972,783 gallons. In 1878 and for several years thereafter the United States Government undertook experiments to ascertain whether sugar could be manufactured profitably from sorghum. But, owing to the necessity of using a large amount of alcohol in crystallization, a substance then very expensive owing to governmental restrictions, the experiments failed to accomplish anything of value. At present sorghum is very largely a product of home manufacture. In 1899 there were 1,910,046 tons of sorghum cane produced, but of this amount 1,618,343 tons were ground by the growers for syrup and only the remainder (291,693 tons) was sent to the mills. Like the product of maple sugar, the amount of sorghum produced has declined both absolutely and relatively. Doubtless they both serve as substitutes for the product of the cane and the beet, but they do not do so to such an extent that they need be considered in a study of the general tendencies in the sugar refining industry.

Beet sugar, however, is different. It has been of growing importance and will demand more attention in the consideration of the relation of the cane sugar refiners to beet sugar growers as competitors and as a factor in sugar legislation.

§ 3. It is the purpose then of this study to consider the phenomena of combination as they present themselves in the production of one of the necessaries of life. In order to understand more thoroughly the basis for the continued success of the organizations that have grown up in the sugar refining industry, it will be necessary, first, to trace the development of the industry from its beginning to the formation of the Sugar Trust and to determine the causes underlying the changes that took place in its growth; second, to follow the history of the Trust as it has gradually expanded and has extended its control, not only in the refining of cane sugar, but also in subsidiary interests; and finally to determine as far as possible the power this or-

ganization has attained in controlling prices, in preventing competition, in securing economy of manufacture, and in maintaining a reasonable degree of profit to those engaged in the industry. It is to these problems that the following pages will be devoted.

Chapter II.

THE GROWTH OF THE INDUSTRY TO 1887.

§ 1. Except within the territory which was acquired through the Spanish-American War, sugar refining as an industry preceded by many years the production of raw sugar in the United States. The cane sugar regions have always been limited to the Gulf States, with Louisiana as the center. The Jesuits had introduced cane into the latter State in 1757, but the article produced was not salable until 1796. Then, after repeated efforts, M. Etienne Boré succeeded in making sugar growing a commercial success. By 1802 the sugar crop of Louisiana amounted to but 2,500 tons annually. The process of manufacturing was still crude. The mills were driven by horse or cattle power, and much of the material was wasted. The refiners, on the other hand, had been in successful operation for many years before the close of the eighteenth century. As far back as 1689, in the days of Leisler, a sugar refinery had been built on Liberty Street in New York.[1] In 1725 a Mr. Hopper was granted a monopoly of refining sugar in the same city. His monopoly, however, was evidently of a temporary nature, for the construction of refineries continued. The records of this early period are incomplete, but it is known that by the time of the Revolutionary War several large plants had been established. The Rhinelanders, Livingstons, Bayards, Cuylers, Roosevelts and Van Cortlands had been in the business for years to their great profit.

New York was not alone in this early development.

[1]Booth, *History of New York City* (1860), p. 316.

Boston and Philadelphia were both interested in refining sugar. During the years 1789-1800 seven sugar refineries, with a productive capacity annually of 100,000 pounds each, existed in the former city.[2] It is thought, however, that the bulk of the sugar consumed in this country before 1789 was from Philadelphia refineries.

§ 2. According to a statement made by Tenche Coxe, Commissioner of Revenue, for the year ending September 30, 1795, regarding the revenue arising from sugar refined within the United States,[3] there were citizens of five States engaged in the business, *i. e.,* Massachusetts, Rhode Island, New York, Pennsylvania and Maryland. The total amount of refined sugar reported was 578,939 pounds and the gross taxes were $34,527.86. However, as the quantity refined in Rhode Island and in Pennsylvania was not given, although the tax paid by those States is included in the total amount mentioned above, it will be necessary to add to the 578,939 pounds the estimated production of these two States. Estimating from the tax paid, one finds that together they produced about 514,000 pounds. This, then, added to the reported production of the other States, gives a total for 1795 of about 1,092,000 pounds. This total includes the product refined from molasses as well as from brown sugar. This estimated amount for the year 1795 is interesting and valuable in two ways. First, when one compares 1,092,000 pounds of sugar refined at that time with a total of 5,614,963,200[4] pounds consumed in 1905, nearly all of which was refined in this country, he can understand that this particular industry has certainly kept pace with general industrial progress. Again, when one remembers that the consumption per capita has increased from an amount dependent on the purchases of the most

[2]Winsor, *Memorial History of Boston* (Boston, 1880), vol. iv, p. 79.
[3]*Amer. State Papers, Finance,* vol. i, 395.
[4]Willett and Gray, *Weekly Statistical Sugar Trade Journal,* Jan. 4, 1906.

well-to-do at the beginning of the past century to a maximum of 75.3 pounds per capita in 1904, he can realize that this particular commodity has become a universal necessity. In the second place, the total amount of raw sugar imported in 1795 was about 60,000,000 pounds. As it was then estimated that two pounds of raw sugar were equivalent to one of refined, it is probable that the 1,092,000 pounds of refined sugar consumed represented but little over one fifty-ninth, or less than 2 per cent of the total sugar consumed. In 1905 the 5,614,963,200 pounds of refined sugar consumed was but 281,200,640 pounds less than the total consumption of sugar of all kinds. In other words, refined sugar to-day represents over 95 per cent of the total consumption. These figures will serve to indicate the growth which the industry has had during the past century both in importance and in the comparative relation of sugar refining to raw sugar production.

§ 3. Statistics of the growth of the industry from 1800 to 1860 are meagre and inaccurate. By 1810 the annual outturn was estimated at 5,000,000 pounds. This was worth $1,000,000, or 20c. per pound. The capital invested was $3,500,000. In 1830 there were thirty-eight refineries, three of which were located in New Orleans, eight in Baltimore, eleven in Philadelphia, eleven in New York, three in Boston, and one each in Salem, Massachusetts, and Providence, Rhode Island. The estimated value of their product in 1834 was $2,000,000. As the great improvements in refining had not yet been introduced and as prices remained about the same, one may assume that the product in that year was close to 10,000,000 pounds. In 1840 the number of refineries had risen to forty-three, and the value of the outturn was $3,250,700, with an invested capital of $5,641,495.[5] The figures obtainable for 1850 are evidently incomplete. The United States census reports that at that time there were twenty-three establishments, with capital of

[5] *Compendium Sixth Census* (1840), p. 363.

$2,669,000 and with products valued at $9,898,800.[6] This represents a decrease of twenty in the number of refineries, notwithstanding the great increase in the product.

With 1860 an era of sugar refining began that is important in its relation to modern combinations. By that time there were forty-one establishments with a total capital of over $9,000,000, which were producing sugar to the value of over $42,000,000.[7] Of these, eighteen were in New York, eight in Philadelphia, two in Massachusetts, and the other leading ones in Maryland, Maine, Missouri and California. These figures, though taken from the United States Census Reports, may not be quite complete, because Mr. Bishop says that there were at that time twenty-six refineries in New York City and vicinity, with a product valued at $35,000,000.[8] Mr. Bishop also gives a list of the New York refineries.[9] It is also stated that the refineries were at that time capable of producing sugar to the value of about $80,000,000, but that they produced to but little over half this value.[10]

In 1870 the total number of refineries was fifty-nine. This was an increase of eighteen during a single decade. Of the States, however, that had reported refineries in 1860, Illinois and Ohio reported none in 1870, and Louisiana reported one less than in the preceding census. On the other hand, Maine, Maryland, Massachusetts, California, New Jersey, Pennsylvania, Rhode Island and Texas reported increased numbers. The total capitalization in 1870 was $20,545,220, as compared with $9,098,100 capitalization of the preceding decade. This was an increase of over $11,000,000. Of course, it should be remembered

[6] U. S. *Census,* 1870, vol. iii, p. 626.

[7] U. S. *Census,* 1860, vol. iii, p. 741.

[8] Bishop, *History of American Manufactures,* Philadelphia, E. Young & Co., 1868, vol. ii, p. 532.

[9] *Ibid.,* vol. ii, p. 594.

[10] *Ibid.,* vol. iii, p. 153.

that, at the best, official reports of the refining industry are not absolutely accurate, because plants that are on the border line between the production of raw sugar and the refining of it are sometimes included in the one group and sometimes in the other. Yet these figures are approximately correct and serve to give a general idea of the development of the industry.

§ 4. This fact is illustrated by comparing the United States census statistics of 1880 and 1890 with one another and with the statements of sugar refiners. According to the census report for 1880 there were forty-nine plants in the United States, with a total capital of $27,432,500, while in 1890 there were 393 plants and a total capitalization of $24,013,000. Evidently in the latter report the plants producing raw sugar were also included. Competent witnesses give a total number of refining companies during the sixties similar to that given by the government. Mr. H. N. Camp, before the congressional committee appointed in 1888 to investigate trusts, stated that before he quit refining in 1870 there were fifty-two plants in existence.[11] About sixty refining companies were recorded in the report of Dun's Commercial Agency for 1867.[12] For the changes during the seventies and eighties the statements of such refiners as Mr. H. O. Havemeyer, Mr. Searles and Mr. Lawson A. Fuller before different investigating committees are at variance with the government figures. Thus Mr. Searles states that by 1875 there were only forty-two plants left, with an estimated outturn of 7,500,000 pounds per day, and that by 1880 these had still further diminished to twenty-seven. He further states that of these twenty-seven refineries twelve were located in New York and vicinity, five in Boston, four in Philadelphia, two in New Orleans, two in San Francisco, one in Portland, Maine,

[11]United States *House Report*, no. 3112, 50 C., 1 S., pp. 73-75.
[12]Dun, *Industrial Directory*, New York, 1867.

and another in St. Louis, Missouri.[13] These figures are substantiated by Mr. H. O. Havemeyer, former head of Sugar Trust;[14] by Mr. F. B. Thurber,[15] formerly one of the leading wholesale grocers of New York City, and by Mr. L. A. Fuller, of the sugar refining company of Aladama & Fuller,[16] of New York City. It is probably true that, in accordance with the testimony of men interested in the refining industry, the number of refining companies had rapidly decreased, especially during the seventies. By 1887 the number had still further decreased, until at that time but twenty-four remained. The three that had failed during the last seven years were located in New York and Philadelphia.

§ 5. From this account one can draw several general conclusions with reference to the development of sugar refining to the time of the formation of the Trust. First, it is quite noticeable what locations became the centers of the industry. In the beginning New York, Philadelphia and Boston were the only important ones. In 1887 and even to-day, so far as cane refineries are concerned, these places remain the great centers, and increase of population and consumption of sugar has extended the territory to include only Portland, Me., Baltimore, Md., New Orleans, St. Louis and San Francisco. The relative importance of the different centers is shown by the fact that, while refined sugar imported seems to be pretty well distributed over the United States, raw sugar and molasses go principally to the great centers. For the year ending June 30, 1904, out of 18,828,530 gallons of molasses imported, valued at $1,018,198, all but 536,000 gallons were received at the five ports—Baltimore, Boston, New York, Philadelphia and New Orleans. Practically all the beet sugar imported goes

[13]Depew, *One Hundred Years of American Commerce*, vol. i, p. 260.
[14]*Report Industrial Commission*, vol. i, p. 109.
[15]United States, *op. cit.*, p. 63.
[16]New York *Investigation of Trusts* (1897), p. 447.

to the New York district for refining. Of the raw cane sugar imported all but 550,000 pounds is landed at the six ports of New York, Philadelphia, New Orleans, Boston, San Francisco and Galveston, Texas. The relative importance of these ports is shown by the following figures:

Pounds imported in 1904.[17]

New York	2,340,929,001
Philadelphia	497,493,538
New Orleans	465,065,213
Boston	355,065,213
San Francisco	11,943,454
Galveston	10,157,802

Were Hawaii and Porto Rico not considered a part of the United States, the totals for New York and San Francisco would be much larger.

Economic causes have made these places the natural centers of the refining industry. As has been said, sugar was from the first an imported product, even to the extent of permitting sugar refining to precede successful sugar growing in this country by a century. The bulk of sugar used in this country is still imported. For only a few years did the production from Louisiana equal or exceed the amount imported from foreign countries. Even that which came from Louisiana was brought to the centers for refining just as if it were imported sugar. From about 1840 the proportion of domestic product became less and less until in 1906, if for the sake of comparison Hawaii, Porto Rico and the Philippine Islands are included in the foreign list,[18] it is found that the domestic product was only 576,124 tons out of a total of nearly 2,060,000 tons. In other words, the product of the American continent was but 28

[17]United States *House Documents,* 58 C., 3 S., vol. 38, p. 458.

[18]It is necessary to do this in order to compare with the period before the acquisition of these territories by the United States.

per cent of the whole. The percentage has varied from year to year owing to political and climatic conditions, but statistics for the entire time show a gradual rise in favor of foreign countries.

The advantage of these great ports for the reception of the raw material is obvious. They are equally favorable for the distribution of the finished product. As the country became populated, means of communication extended out from these points. Hence it was most natural that sugar refining should be located along the wharves of the seaports, where direct communication could be had both with the sources of raw material and with the field for distribution of the finished product.

§ 6. Another striking feature has been the tendency toward monopoly since the Civil War. Before the war and for some time after its close the demand for refined sugar was great enough to insure a good profit for any one of good business ability. Hence a gradual increase in the number of plants along with an increase in product resulted. But from about 1870, as has been shown, while capacity and outturn continued to increase, the number of plants rapidly decreased. The causes for this remarkable change are to be found mainly in the improvements that had been introduced into the industry from time to time, to the advantages resulting from large-scale production, and to the changes made in the tariff.

§ 7. A comparison of the old methods of refining with the new, together with a brief account of the introduction of epoch-making improvements, will make more clear how changes in methods of production have promoted the tendency toward centralization. A typical refinery of the old type as operated as late as 1833 was described as having two large kettles, or copper boilers, at one side of the room, into which first lime water would be placed to neutralize any acid that might be in the sugar. About 5,500 pounds of sugar, and finally about three and one-

half gallons of fresh bullock's blood and occasionally whites of eggs would then be added. The sugar would then be brought near the boiling point and in about three and one-half hours a scum from six to ten inches thick would be formed. A panman would skim this off until a white, milky froth appeared. Then the clarifying was complete.

The liquor would then be strained through blankets and returned to the pans after they had been washed. Then followed the process of evaporating. This was accomplished by boiling the liquor until by the "thumb and finger test"[19] the boiler should determine that the substance was thick enough to crystallize. This was the critical point, and the determination of it required much care and skill. The fire would then be dampened, the liquor placed in coolers, and after a few moments stirring the crystallization would take place. The final process consisted in putting the sugar in molds and removing it to put into ovens for baking.[20]

Such, in brief, was the method as followed by the refineries generally until during the thirties. From that time improvements were gradually introduced. Melting, filtration and crystallization still remain the fundamentals of sugar refining, but the methods of accomplishing these processes have changed. The time of the introduction of the various epoch-making improvements is uncertain. Mr. J. E. Searles, in his account of the industry, says that in 1832 R. L. & A. Stuart started a refinery employing steam for the first time.[21] Yet, according to the government report published in 1833, at least three refineries were at that time using steam both for power and for refining the sugar,[22]

[19]Process of determining the thickness by drawing out between thumb and fingers.

[20]U. S. Treasury report on "Sugar," 1833, p. 82.

[21]John E. Searles, "American Sugar," in Depew, *One Hundred Years of American Commerce*, vol. i, pp. 257-261.

[22]*Report on Sugar*, 1833, p. 69.

and the Stuart refinery is not mentioned as one of these. Mr. Searles is probably in error when he gives the Stuart refinery the credit for being the first to use steam. Mr. Searles also states that by 1838 the use of steam was well established. This is probably approximately correct. In 1848 a granulating machine for drying damp white sugar and reducing the grain was introduced. Mr. Searles also states that in 1855 the vacuum pan for crystallizing at a low temperature and somewhat later the filter of animal charcoal came into use, but the Treasury report already referred to states that the vacuum pan and animal charcoal[23] were both used in the three modern plants as far back as 1833. Mr. Searles probably means that by the dates he mentions the improvements spoken of had been generally introduced.

The final improvements were the centrifugal machine, the polariscope and various chemical appliances. Mr. Searles gives 1860 as the date of the introduction of the centrifugal machine in the process of refining sugar. It had been used before this in the production of the raw product.[24] Mr. Searles also states that these improvements reduced the time required for refining from two weeks to twenty-four hours. The two weeks must have been under the old system as practiced before 1833, because, in the report above referred to,[25] five days were allowed for refining and one day for taking care of bastard sugars.

The modern filter is a large iron cylinder, or drum, said to contain usually about 10,000 pounds of animal charcoal. The filter removes most of the impurities and coloring matter. The "vacuum pan" is a large cylinder with a dome-shaped top and an abundance of steam coils. When filled and closed the apparatus becomes air-tight. It is connected with a pump which exhausts the air and vapor

[23] Animal charcoal is ordinary bone-black through which the liquid sugar is passed and which absorbs the impurities.

[24] Bradstreet's *Journal*, New York, Sept. 15, 1883.

[25] *Supra*, p. 69.

as fast as it is formed so the liquid can boil at a low temperature. The "centrifugal" machines are small drums holding about 120 pounds each. Within the drum is a wire screen basket which revolves 1,600 times or more a minute. The centrifugal force throws the molasses out through the wire network and leaves the sugar. After the syrup is driven out a little water is spurted into the drum and thrown out through the sugar. This washes out any syrup that may remain and also any remaining coloring matter.

One cannot visit a refinery to-day without being impressed with the enormous possibilities for economy under the modern system. The facilities for loading and unloading material and fuel, for removing and saving every particle of sugar, even by boiling the bags in which the raw sugar is shipped, the saving in management and in numerous other ways bring vividly to one's attention the change that must have taken place. While the fundamental processes remain the same, the scale on which refining is now carried on is incomparably greater than it was in the earlier days.

§ 8. Changes of method involved the practical remodeling of the old refineries. Many refiners did not care to continue the struggle and went out of business. Among those who had made millions in the business were the houses of R. L. & A. Stuart and the Havemeyers. The Stuarts retired, but the Havemeyer Company introduced all of the improvements, increased capitalization and finally became the leading member of the Sugar Trust. Other houses, later among the largest ones, were started during this period of general failure. In the advantages derived from these improvements in the stronger concerns one finds one of the principal causes for the rapid failure of weaker plants during the years preceding the formation of the Trust.

This growing competition becomes more apparent when

the increased capacity of the plants is compared with the effective demand for the refined product in the United States and in foreign countries as measured in the consumption of sugar in this country, plus the amount exported. From 1851 to 1869 the average annual exportation of sugar refined from the domestic raw product was about 3,400,000 pounds. From 1870 to 1874 inclusive it averaged 6,500,000 pounds annually, with a maximum of nearly 10,000,000 in 1874. From 1875 to 1885 there was a rapid increase from 23,789,000 pounds to 252,579,000 pounds.[26] During the years from 1865 to 1891 exports of sugar refined from foreign raws declined from over 2,000,000 pounds to 1,340 pounds. But the increase of domestic refined sugar exported represents an overflow due to increased capacity upon which the refiners had to pay transportation charges and then sell at the prevailing price in the foreign market without the protection of a tariff. This overflow or "dump" considered in connection with the table[27] given below showing the domestic consumption represents the extent of the refiners' market:

Year	Estimated Population	Consumption Tons	Pounds per Capita
1867	36,211,000	467,268	28.9
1870	38,558,371	606,492	35.3
1875	43,766,000	713,002	37.1
1880	50,155,000	922,109	43.9
1885	56,240,000	1,254,116	49.9
1890	62,979,766	1,522,731	54.5

Thus, with the introduction of improvements which reduced the refining process from two weeks to sixteen hours for soft sugars and made the limit for any grade twenty-four hours, the capacity was increased far more

[26] Compiled from *Commerce and Navigation Reports* and *U. S. Statistical Abstract.*

[27] 1867, 1870, 1875, 1880, taken from U. S. Dept. Agriculture *Chemistry Bulletin*, no. 5, 1886, p. 25; 1885, 1890, from Willet and Gray, *Sugar Trade Journal.*

rapidly than the demand, which, as shown by the above figures, did not even double. Although between 1867 and 1887 about thirty-six refineries went out of business, yet in 1886, the year before the formation of the Trust, the annual capacity of the remaining factories was over 3,926,000,000 pounds, or over 889,000,000 pounds in excess of the actual demand in this country, and over 636,000,000 pounds in excess of the total market. Under a régime such as this the margin[28] for refining had been reduced from ten cents in the earlier part of the century to three cents in 1876 and to .685 of a cent in 1887. The companies that survived were those that took advantage of the economies of large-scale production. The Havemeyer and Elder Company, although it had suffered great loss by fire during the years preceding the crisis, had a capacity of 8,000 barrels daily. Mr. Havemeyer admitted that his company had made money even on the narrow margin of .685 of a cent per pound. The advantage of large-scale production is made more clear by the fact that many of the companies that had failed had a capacity of only about seventy-five to four hundred barrels daily.

In connection with the effects of improvements upon the development of the sugar refining industry one must consider two other factors, *i. e.,* the influence of the tariff and the effect of the conditions attending the Civil War. As this will require the tracing of the relation of the tariff from the beginning of our constitutional history to the year 1887, a separate chapter will be devoted to it.

[28]The term "margin" is used to designate the difference between the price of raw sugar and that of refined. It not only represents net profit, but also includes waste in refining and all other expenses. The refiners' profit consists in the amount remaining after these expenses are paid.

Chapter III.

RELATION OF THE TARIFF TO THE GROWTH OF THE INDUSTRY.

§ 1. Sugar refining enjoyed the blessings of government protection even before the formation of the Constitution. Pennsylvania had encouraged the industry by means of a favorable duty, and had brought it to a very flourishing condition.[1] The original tariff acts of the National Government, however, so far as sugar is concerned, evidently had no protective motive behind them. The first act, passed July 4, 1789, placed a duty of 1c. a pound on raw sugars and 3c. on refined. The refiners claimed that this afforded them no protection, but their complaints were not heeded. In 1790 the refiners were recognized by an increase of duty on refined sugar to 5c. a pound, while the duty on raw sugar was increased but ½c., and in 1794 their wants were still further attended to by a duty of 9c. per pound, while raw sugars were taxed only 2½c. This policy of high protection was continued until the passage of the tariff act of 1842. From 1794 to 1812 the rate continued at 9c. per pound. In the latter year it was increased to 18c., and remained at that figure until 1816, when loaf or candy sugar, refined, was placed at 12c. and lump sugar at 10c. per pound. This rate continued unchanged until 1842, when the duty on refined sugar was reduced to 6c. The protective influence of this high rate on refined sugars is indicated by the fact that on the reduction from 12c. to 6c. per pound in 1842, the importations of foreign refined sugar rapidly increased from 68,147

[1] Maclay's *Journal*, p. 56.

pounds in 1841 to 2,215,517 pounds in 1844. Under the tariff in force 1846-1857, which levied 30 per cent. *ad valorem* on all sugars, the amount imported remained high. Several years saw an importation of over 1,000,000 pounds. This indicates that the protection to the refiners was less during this period than either before or since. During the entire period the rate on brown sugar, with the exception of the years 1812-1816, when 5c. was levied, never exceeded 3c. per pound, and the rate on white, clayed or powdered sugar was limited to 4c.[2]

The effect of this legislation was soon apparent. The imports of refined sugar fell from 265,000 pounds in 1791 to 55,000 in 1795, and by 1800 the amount had fallen to 10,000 pounds. Since that time the imports of refined sugar have generally been insignificant and the refiners have had the American field practically to themselves. Their competition did not exist in the product of foreign refineries, but in the general use of raw sugar and molasses by the masses of the people, and the refiners have had the task of cultivating a taste for the refined product. Their gradual success has been indicated in the figures already given showing the relative amounts of refined sugar used at the beginning of the century and at the present time.

§ 2. While protected by the high tariff on refined sugars from almost the beginning of the government under the Constitution, the refiners also found means to better themselves from time to time by the varying rates of duty on raw sugar and molasses and by the drawbacks that were allowed on imported sugar refined within the United States and re-exported. The period from 1830 to 1840 seems to have been the most fruitful in profits arising from improper adjustments of drawbacks to duties. Since syrup of sugar was not an enumerated article, it was subject to an *ad valorem* duty of 15 per cent. It was invoiced in 1831 at over 30c. per gallon. This gave a duty equivalent to a

[2]U. S. *Senate Report*, no. 2130, 51 C., 2 S., vol. 2.

specific charge of 6c. per gallon. It was decided by certain refiners that there would be a great saving of duty by first turning the raw sugar into syrup by adding water and then importing it in liquid form. They could do this economically because it was the first step they had to take in the process of refining. It was variously estimated by different customs collectors that a gallon of syrup so prepared would contain from eight to twelve pounds of raw sugar, or the sugar would compose from seven-eighths to nine-tenths of the total bulk. Since the duty on brown sugar was at that time 3c. per pound and on clayed 4c. per pound, if clayed sugar were brought in without being transformed into syrup, eight pounds of sugar would have to pay a duty of 32c. By turning it into syrup the charge at most would be but 6c. This permitted them to save about 26c. per gallon. The scheme was not long successful, for in 1832 Congress remedied the defect by levying a specific duty of 2½c. per pound upon syrup of sugar cane.

Then the refiners turned to the other form of liquid sugar as a means of avoiding the payment of duties and began to import molasses. From May, 1828, to May, 1830, the duty on molasses had been 10c. per gallon. On the latter date the duty was reduced to 5c. per gallon, and this rate continued until 1842. The policy pursued was to boil down the cane juice almost to the point of crystallization and to import it in that form. The refiners continued this policy until 1842, when this form of sugar was provided for by special legislation. While this possibility of substituting molasses for sugar had some influence, it appears that that influence was not as great as some writers would have us suppose.[3] A comparison of the average annual import of molasses for the years 1822-1829 inclusive, with the average for the years 1831-1842 inclusive, shows that the average for the latter period represents an increase of less than 50 per cent over that of the former

[3]Cf. Griffen, "Taxation of Sugar," *Quar. Jour. Econ.*, vol. xi, p. 307

period,[4] while the imports of sugar for similar periods show an increase of over 85 per cent.[5] It is also interesting to note that after the change in the law in 1842, the proportion of molasses imported continued apparently unaffected by the change. Probably, the chance of avoiding the payment of duties did have some influence. But other forces were at work which made the importation of sugar in a form that could be more readily handled by the refiners more desirable.

§ 3. An influence of far more importance than either of these was the failure of Congress to adjust the drawback on sugar to the changes made in the tariff, 1828 and 1832. In 1829 the drawback was fixed at 5c. per pound. This rate was maintained until 1842, when the policy was adopted of allowing the Secretary of the Treasury to adjust the rate of drawback to the amount of duty paid. The increase in the rate of drawback in 1829 caused an immediate increase in the amount of sugar exported. But this increase became most marked after the passage of the Compromise Act of 1832, which provided for a gradual reduction of the tax on sugar from 2½c. per pound to less than 2c. in 1840 and to about 1c. in 1842. It can readily be seen that a gradual reduction in the rate of duty without a corresponding decrease in the drawback gave an increasing stimulus to refiners to import raw sugar for the express purpose of refining for the export trade. That this was the result is shown by the drawbacks[6] paid on refined

[4]This method of comparison is undoubtedly fair, because with the exception of the years 1839 and 1840 the increase is not beyond what might have been due to other causes.

[5]U. S. *Finance Report*, 1845, pp. 188, 191. The imports of sugar for the years 1822-1849 show no marked increase. From 1831 to 1842 there was a change from 109,014,654 pounds to 173,863,555 pounds.

[6]Drawback paid on domestic refined sugar 1821-1845. U. S. *Finance Report*, 1845, vol. v, p. 619:

1821	$5,362	1823	$2,281
1822	1,981	1824	2,308

sugar. The amount of drawback increased from $2,045 in 1828 to $45,092 in 1829, and again from 1837, when $100,642 were paid, the amount increased to $633,536 in 1841. In 1842 the amount fell to $89,447 and in the following year to $8,426.

This advantage to the refining industry was undoubtedly very conducive to its general growth. In fact, as has been shown, it was during this period that many of the most important improvements were introduced. It was found in 1842 that the waste of raw material had been reduced to 25 per cent as against about 40 per cent in 1829. The years when the greatest drawbacks were paid and when evidently sugar refining was enjoying its greatest prosperity, were those beginning with and following the great panic of 1837, when all the remaining industrial system was in chaos.

§ 4. The period from 1842 to 1860 had little of interest in the relation of the tariff to sugar refining. As has been said, according to the law of 1842, the rate was made 2½c. per pound on brown sugar and 6c. on all other grades. In 1846 a change was made to an *ad valorem* rate of 30 per cent, and this continued until 1857, when it was reduced to 24 per cent. No further change was made until 1861. One phase of the business during this period was the change that took place in the quality of sugar refined. This, however, was due rather to other causes than to the tariff.

1825	$1,612	1836	$83,768
1826	2,627	1837	100,642
1827	5,834	1838	145,494
1828	2,045	1839	357,188
1829	45,092	1840	523,263
1830	84,230	1841	633,536
1831	63,688	1842	89,447
1832	42,840	1843	8,426
1833	34,643	1844	71,851
1834	162,086	1845	74,376
1835	41,172		

Before 1850 the refiners had tried to secure grades of raw material containing as high a percentage of sugar as possible. Among those mainly used were the sugars known as "Havana box," "clayed Manilla," and the better class of "Porto Rico" sugars. As the syrups from these varieties were very rich in sugars they were "worked back," that is, worked over again, and thus the total product of refined sugar was increased. By this process they hoped to get of first product, consisting of refined and white sugar, about 73 per cent, and of yellow sugar and molasses about 24 per cent. This left about 3 per cent waste.

About 1848 to 1850 the increasing competition of grocers for the higher grade sugars forced the refiners to use increasing quantities of the lower grades. This, for the time being, brought about the policy of securing only about 50 per cent of refined sugar from the product and looking for profit in the increased amount that could be handled with the same capital and labor by avoiding the "working back" process and by the sale of second products.[7] Improvements of various kinds were being constantly introduced, and, as the growth of the industry indicates, it was in a generally prosperous condition.

§ 5. With 1861, sugar refining, as well as many other industries, entered upon an era of stimulation, both economic and political. In this particular industry the main stimulating factors were: First, the increased demand for the refined product, brought about by the destruction of the Louisiana sugar industry by the Civil War; second, the stimulation of high prices; third, the changes in the tariff; and fourth, the widening of the market due to increasing transportation facilities. In the first case the sugar industry of the South was almost ruined. The consumption of domestic sugars for the three years 1860-1862 had averaged annually 144,140 tons. This consumption had dwindled to 5,000 tons in 1865, and did not exceed 80,000 tons

[7] U. S. *House Executive Document,* no. 34, 39 C., 1 S., p. 98.

again until 1877. In 1870 it was still only 46,800 tons. This injury to the domestic supply resulted in an increasing consumption of foreign sugars. The annual average for the foreign supply consumed for the five years 1857-1861 had been 252,786 tons. This increased to 350,809 tons in 1865, 400,568 tons in 1867, 637,373 tons in 1872, and so on until in 1886 the total was 1,060,308 tons.[8] This foreign supply went very largely through the hands of the refiners, many of whom were also importers, who found a new demand for their products owing to the failure of the domestic source.

The demand for raw sugars during this period is indicated by its increased price. For the year 1858 and 1859 the price had varied from 5c. to 8c. per pound in New York City. During the three years 1864-1866 the price varied from 10c. to 25c. per pound. The prices were the highest in 1864, when they varied from 11c. to 25c.[9] From that time on they gradually decreased, until in 1886 the limits were 4⅝c. to 5½c.[10] The relations of the prices of raw sugar to that of refined sugar can perhaps be best illustrated from the index number tabulations given by Mr. Aldrich in his Senate Report.[11] Taking 1860 as the base, Mr. Aldrich found that by 1865 fair refining[12] had increased in price from 100 to 244.8, while for the same year refined sugar stood at 285. A comparison of the index figures shows that for the entire period (1861-1871)

[8] *American Almanac,* 1888, p. 33. The figures for total consumption are less than those given by Messrs. Willett and Gray for the same years.

[9] Part of this increase in price was due to fluctuations in the value of gold during the war. Much of it, however, was due to the destruction of the Louisiana cane supply.

[10] *American Almanac,* 1888, p. 102.

[11] U. S. *Senate Report,* no. 1394, 52 C., 2 S. (1892-93), vol. 3, pt. 1, p. 35.

[12] "Fair refining," a medium grade sugar testing 89°, for which prices are given by Mr. Aldrich for the period 1840-1891. Fair refining equals No. 12 D. S. U. S. *House Report,* no. 3112, 50 C., 1 S., p.

refined sugar was much higher in price as compared with 1860 than was the price of raw sugar as compared with the 1860 standard. This is also true of the twenty years preceding 1860 and especially of the years from 1840-1856 inclusive, but the introduction of improvements during the years before 1860, resulting in economies and greater profits to refiners, makes the marked differences in rise of price during and following the Civil War of especial significance. The increased price of raw material shows the added value of the imported product and an increasingly important position of refiners in the general sugar industry, and the comparatively increased price of refined sugar is an indication of an added stimulus to invest capital in the business. Two important factors, then, were the increased demand for the sugar handled by refiners due to the destruction of the Louisiana sugar industry and the increased comparative price of refined sugar.

§ 6. The relation of the tariff to the increased activity in sugar refining is not so clear. By Act of March 2, 1861, the rate was changed from 24 per cent *ad valorem* on all kinds of sugars to a specific duty of ¾c. on raw sugars, both brown and white, and of 2c. on refined. By two subsequent acts during the same year, the rate on raw, muscovado[13] or brown sugar not above No. 12, Dutch Stan-

[13]"Muscovado" is a low grade of sugar. It contains a larger proportion of molasses than the higher grades. It is made by the crude system of "open kettle" boiling, the oldest of the methods of manufacture. Four copper kettles are generally used by which, by being transferred from one kettle to another at increasing temperatures, the juice is gradually brought to a state of crystallization. The grade above, known as "clayed," has more of the molasses and other impurities removed by means of water percolating through it from moist layers of clay laid over it. The highest grade of raw sugars, known as "Centrifugals," the process of manufacture of which has already been described, is equal to 96 degrees polariscope test. For description of manufacture, see *supra*, p. 15. This process was the revolutionizing one in that it accomplished in a few moments what required days by the older processes. D. A. Wells, *Sugar Industry* (1878), pp. 19-22.

dard,[14] was increased to 2½c. per pound, between No. 12 and No. 15 was rated at 3c., and refined sugars at 5c. per pound. From July, 1862, to June, 1864, refined sugars were subject to a duty of 4c., and from the latter date to July, 1870, 5c. was charged. During the same period (1864-1870) raws not above No. 12 D. S. paid 3c. This gave refined sugars an advantage, during the latter period, of 2c. per pound, as against 1¼c. in 1861. Undoubtedly this increased protection had some influence, but, as no evidence of any relation between changes in prices of refined and the dates of specific tariff acts exists, it is impossible to consider the effect of the tariff separately. So many factors enter, such as the increased cost of labor, materials, etc., that one cannot determine more than the general tendency any influence may have had.

§ 7. It has been pointed out that the excise tax levied on the products of the refineries during the sixties had a very decided tendency to lessen the profits of refiners. The Act of July, 1862, took effect September 1 of that year. For the ten months ending June 31, 1863, with a rate of excise 1½ per cent, the refiners paid $220,234; for 1864, $873,140, and for 1865, under the action of two successive laws, the first levying 2½ per cent *ad valorem* on the gross amount of sales of sugar refiners, and the second 3 per cent, the total amount paid in currency was $1,720,621. It was shown that, as only the refined product was protected, the raw sugar and molasses being subject to the competition of foreign products, the excise which fell on all the

[14] "Dutch Standard." This system of classifying sugars was originated by the Dutch in classifying the sugars brought from Java, a Dutch East Indian dependency. The system is based on the assumption that color is a criterion of purity. No. 20 or upwards in color are white, and are of the highest degree of purity. No. 12 is considered as the dividing line between the raw and refined product. This method of grading was introduced into the American tariff system in 1861, and was continued until 1874, when the polariscope was introduced for sugar below No. 13 D. S.

products alike had virtually to be borne by the refined product. As the refined product was only about 50 per cent of the total outturn it made the real tax on refined sugar about 6 per cent instead of the nominal 3 per cent. As the additional value given to the sugar product by refining, less interest on capital, was only about 7 per cent, evidently but little was left to refiners. For this reason the Revenue Commission recommended that the excise on refined sugar be removed and that the tax impost and excise on all foreign and domestic cane sugar be advanced ½c. per pound, and on all foreign and domestic molasses 2c. per gallon. It was thought by the Commission that such a tax would fall on the producer rather than the consumer, because the tendency of sugar production to exceed demand would throw competition on the producer's side. On March 2, 1867, the revenue duty on raw sugar was reduced to 1c. per pound and on the products of refiners from 2½ per cent to 2 per cent *ad valorem,* and on March 31 of the following year all internal taxes on sugars were repealed.[15] The exact influence of the excise taxes of this period cannot be determined, but they certainly tended to lessen the profit of the sugar refiners and to neutralize the effect of the increased protection. But their influence was not sufficient to overcome entirely the stimulus given by the increased prices of the Civil War and the higher tariff. This has been shown by the remarkable growth both in the number of new plants and the amount of capital invested in this business during the decade 1860-1870.

§ 8. It must now be determined to what extent the tariff was responsible for the failures leading up to the formation of the Sugar Trust. In a general way, the year 1870 may be taken as the point after which large-scale production and improved methods began to show their advantage over small competitors. The testimony of refiners is that the most of the failures in the business took place after the

[15]U. S. *Statutes at Large,* vol. xiv, pp. 129, 474; xv, p. 59.

year 1875, but a study of prices shows that forces were at work even before the panic of 1873 that were sure to force the weaker producers to the wall. Mr. Aldrich's report shows that in 1869, while fair refining sugars were at 155.2 as compared with 1860, refined sugars stood at 153.5. This was a fall of 3 points from 1866 in relative price of raw sugars and of 33 in that of refined. Almost without exception, from 1872 until 1888, the year after the formation of the Trust, the price of refined sugar as compared with the price in 1860 was lower proportionally than the price of raw sugar as compared with 1860.[16] From 1864 to July, 1870, all sugars not above No. 12 D. S. were taxed 3c. per pound and all refined sugars 5c. This was a difference of 2c. In 1870 a change was made by taxing all sugars not above No. 7 D. S. 1¾c. per pound; not above No. 10 and above No. 7, 2c.; above No. 10 and not above No. 13, 2¼c. The rate on refined sugar was reduced to 4c. per pound.[17] As the bulk of the raw sugar imported was of the second grade, that is, above No. 7, and not above No. 10 D. S., there was practically no change in the protection granted refiners. Hence one must look elsewhere for the causes of the downfall of the small refiners, at least during the early part of the period.

During most of the time from 1874 to 1883 the rates stood as follows: Not above No. 7 D. S., 2.1875c. per pound; above No. 7 and not above No. 10, 2.5c.; above No. 10 and not above No. 13, 2.8125c.; No. 13-16, 3.4375c.; No. 16-20, 4.0625c., and refined sugars, 5c. per pound. One change made in 1874 was the introduction of the polariscope test for sugars below No. 13 Dutch Standard in color. The Dutch Standard system had failed to prove an accurate criterion of the quality of low grade raw sugars imported, and the change to the polariscope test became necessary. For sugars above No. 13 the older system was

[16] U. S. *Senate Report*, 52 C., 2 S., 1892-93, vol. 3, pt. 1, p. 35.
[17] U. S. *Senate Report*, 48 C., 1 S., vol. 1, pp. 212-213.

continued. As under this tariff the bulk of raw sugars imported was above No. 7 and not above No. 10 D. S., it becomes clear that the refiners had an increased margin of ½c., or a total difference of 2½c. as against 2c. for the earlier years. Yet the price of both raw and refined sugars continued to fall, and that of refined fell the more rapidly of the two. Evidently up to 1883 the tariff had little or no influence on the changing situation in the sugar refining industry.

§ 9. It is also improbable that the financial crisis of 1873 had any great influence in driving refiners out of business, although it is shown that the prices of both raw and refined sugar fell materially after 1873.[18] Yet the fall of both was proportionally much the same, thus leaving the refiners with the advantage of maintaining about the same profit per unit of product while paying actually less per unit for raw material and handling a continually increasing amount. The statistics of consumption for the years of crisis also lead to the conclusion that sugar refining was not injured to any extent. In 1870 the total estimated consumption of sugar in the United States was 530,692 tons. By 1874 this had increased to 710,369 tons. With the exception of a slight decrease in 1876, the whole period shows a steady growth in the demand for sugar. Had the crisis been influential it should have resulted in a marked narrowing of the margin between the price of raw and refined sugars, together with a marked falling off of the demand for sugar at the time of the crisis. As neither of these phenomena appears, but rather the opposite conditions prevail, it seems that the conclusion that the panic had little or no influence is justified.

§ 10. The Act of March 3, 1883, may have had some influence in hastening the time when the refiners would form a combination, since the differential on refined sugars was then materially lessened. All sugars not above No. 13

[18] *American Almanac*, 1888, p. 33.

D. S. and testing not above 75° were to pay a duty of 1.4c. per pound, and for each additional degree .04c. were to be paid. Sugars above No. 13 and not above No. 16 D. S. were to pay 2.75c.; above No. 16 and not above No. 20, 3c., and above No. 20, 3.50c. As the bulk of the sugars used by refiners tested near 89° or 90°, the duty on raws was about 1.6c. per pound. This gave the refiners a margin of practically 1.9c. as against about 2.5c. under the preceding laws. In connection with this change in tariff it is interesting to note that the difference between the price of centrifugal sugar and of granulated refined fell from 1.437c. in 1882 to 1.083c. in 1883 and to .923c. in 1884, and that this margin continued to lessen until after the formation of the Trust. Undoubtedly the tariff act of 1883 hastened the time when concerted action on the part of refiners would be assured.

Two phases of the relation of the government to the sugar refining industry remain to be considered. The first is the relation of governmental encouragement by means of drawbacks to the growth of the industry and to the changes that took place, and the second is the influence of special tariff relations with Hawaii, Cuba and Porto Rico in developing fields of future activity for the Trust. The first of these topics may properly be considered here. The second will be taken up in the chapter on the profits of the sugar refining industry.

§ 11. Various refiners have stated that the drawback was a very important element in the stimulation of the refining industry under certain conditions and in the failure of refining companies under others.[19] It was asserted that by means of a drawback the government was paying, in effect, a bounty to the refiners upon all refined sugars exported. This drawback was really a premium or profit which tempted many to increase productive power. Over-

[19] *House Miscellaneous Document*, no. 176, 51 C., 1 S., p. 662; also *House Report* 3112, 50 C., 1 S., p. 126.

production resulted, then the drawback was lessened and the refiners suffered. During the seventies, when so many refining companies were going out of business, the refiners attributed part of the difficulties to drawback changes.[20]

A study of the amount of sugar refined from the foreign raw product and exported from the United States indicates that the drawback could have been of importance only for the few years preceding and including the Civil War. The following table[21] will indicate the relative importance of the various years:

SUGAR REFINED FROM FOREIGN RAWS RE-EXPORTED.

Year	Pounds	Year	Pounds
1857	1,127,827	1862	4,833,586[22]
1858	2,137,648	1863	8,887,719
1859	2,361,575	1864	4,944,879
1860	4,945,267	1865	2,194,816
1861	4,217,205		

AVERAGE ANNUAL EXPORTATION.

1866-71	602,846	1876-81	27,592
1871-76	245,855	1881-86	25,000

These figures show that only during the period 1857 to 1865 could the drawback have been of any importance in stimulating the industry, and that after that time the amount exported has been so small that the entire drawback could have been denied without having any great effect on the general situation.

The drawback on refined sugar during this entire period (1857-1865) was fixed at 1½c. per pound.[23] From this it

[20]New York Chamber of Commerce *Reports*, 1875, 1877, 1878.

[21]Taken from *U. S. Reports Commerce and Navigation.* Most of this exportation is entitled to drawback, although from 1855 no report is made of the exact amount.

[22]The reports for 1862 and the following years do not give separately the amounts exported from warehouses and that exported after paying duty. The former amount has been comparatively small at all times.

[23]E. D. Ogden, *U. S. Tariff*, 1864, p. 109. Bogert, Bourne & Auten, New York City.

can only be concluded that if the drawback had any influence at all it was due to the relative increase in 1857 by the reduction of the *ad valorem* tariff from 30 per cent to 24 per cent. But the fact that the maximum exportation was reached and a rapid decline had taken place before any change was made in the rate of drawback indicates that its influence was much less than was asserted and that the real cause for both the growth of the industry and the failure of sugar refining companies lay elsewhere than in the regulation of the drawback by the United States Treasury Department. Change in rate of drawback was made at various times during the seventies, but, as has already been shown, these had no important relation to the general problem.

In summarizing the results of the inquiry into the causes of the growth of the refining industry, it may be said that from the earliest times to the Civil War the tariff was a very important factor; that during the Civil War this influence, while doubtless real, is merged with a number of other causes, such as the destruction of the Louisiana sugar industry, the stimulus of increased prices, and the influence of the drawback. It has been shown further that the internal revenue tax tended to neutralize the effect of the increased tariff, but that this influence probably was of minor importance. It seems, too, that neither the tariff nor the panic of 1873 had any great direct effect in hastening the failures of refining companies during the seventies. The tariff of 1883 may have hastened the final combination. The effect of the tariff was the indirect one of being a factor stimulating the industry to the point of overproduction during the years preceding 1870. It may be concluded, then, that the transition that took place leading up to the formation of the Sugar Trust was the natural result of overproduction due to excessive movement of capital into this industrial group at a time when the capacity for production was being greatly increased by remarkable improvements in methods of refining.

Chapter IV.

THE ORGANIZATION AND GROWTH OF THE SUGAR TRUST.

§ 1. Because of the centralization of production into so few large plants, a condition brought about by the causes considered in the preceding chapters, the refiners were faced with a serious situation. As the profit per pound decreased, money could alone be made by increasing the outturn, and this in turn tended not only to wipe out profits, but even to leave on the hands of the refiners an unsold product produced at actual loss. The business had become so highly organized, such large interests were at stake, and the field was limited to so few gigantic competitors, who, because of their location, with the exception of the California refiners, were practically in the same market, that the impending struggle meant severe loss to both the winner and loser. As a result the question presented itself to the refiners whether the ultimate rewards of driving out competitors would be greater than the immediate ones of changing those engaged in industrial warfare into common sharers in profits. Production had to be limited either by the harsh, cruel methods of competition or by agreement among the producers. The latter was the plan adopted.

§ 2. Long before 1887 the necessity of dealing with the problems of overproduction had become apparent to the refiners. It seems that during the sixties there was some understanding among them. But those acquainted with conditions at that time say the combination did not amount to anything. It is also said there was a so-called "ring" during the early seventies. It was stated that at

that time the refiners at the water's edge in New York City had the advantage of ½c. a pound.[1] It is also probable that this "ring," if any existed, had but a local importance and temporary influence.

In 1881 a movement of more importance began. The refiners, realizing the damaging results of an unregulated, competitive production, began to try by mutual agreement to limit the outturn. The firms of Havemeyer & Elder, Matthiessen & Weichers and the Brooklyn Sugar Refining Company brought about a verbal agreement—no articles being signed—to curtail production of refineries one-third until there should be an improvement in demand. They had the further understanding that production would be reduced still more if the demand should not increase and prices advance. It is said that the refiners of Boston and Philadelphia refused to join in this agreement.[2] Later, however, it seems that at least Boston came into the combination.[3] The refiners in Boston and New York adjusted their meetings from week to week to the demand of the market. This agreement was in the nature of an experiment only and was necessarily but temporary. It was repeated from time to time, but was found to be futile. The movement toward community of interest did not culminate until 1887. As none of these earlier movements had any permanent influence, consideration will now be given to the various phases of the Sugar Trust, which has been the central factor in the sugar industry for twenty years and which has been closely related to every important change that has taken place.

§ 3. On or about October 24, 1887,[4] after months of

[1] New York, *Investigation of Trusts,* 1897, p. 447, *Testimony of Lawson N. Fuller.*

[2] Bradstreet's *Journal,* 1881, p. 43.

[3] J. E. Searles, in Depew's *One Hundred Years of American Commerce,* vol. 1, p. 260.

[4] New York *Investigation of Trusts,* 1888, pp. 5 and 8.

negotiating by Mr. H. O. Havemeyer and a few others, and by virtue of an agreement between the stockholders of eight sugar refining corporations, the organization known as the "Sugar Refineries Company" came into existence. It was not the first movement of the kind known to American industry. The Standard Oil Company had been organized in 1882; the Whisky Trust earlier in the same year that witnessed the formation of the Sugar Trust,[5] and the Arnold Committee in New York, 1888, found eleven so-called "Trusts" as subjects worthy of its attention. These were the Sugar Trust, Milk Trust, Rubber Trust, Cotton-seed Oil Trust, Envelope Trust, Elevator Trust, Oil Cloth Trust, Standard Oil Trust, Butchers' Trust, Glass Trust, and Furniture Trust. But of all these the Sugar Trust was destined to be one of the most successful from the point of view of growth, control, and profit to its members.

Although but eight refining companies had taken part in the original formation of the Trust, all but one of the eighteen companies which in 1891 were reorganized into the American Sugar Refining Company had signed the agreement before the end of the year 1887. Of the twenty refineries owned and controlled by these companies, eleven were in New York and vicinity, four in Boston, and the other five in Portland, Maine, St. Louis, Missouri, New Orleans, Louisiana, and San Francisco, California. As estimated by seasons of the year when they were running full, they had a combined daily capacity of 33,500 barrels. Immediately after formation, by closing some plants and combining others, the Trust reduced these twenty to ten, and yet these ten, when properly managed, had a capacity of 34,000 barrels, a greater amount than that of the original plants working independently. The five refining com-

[5]The term Trust will be used throughout this volume to designate the American Sugar Refining Company, although, strictly speaking, the trust form was abandoned on incorporating the American Sugar Refining Company in 1891.

panies which remained independent had a total capacity of 10,400 barrels.

The method adopted for organizing the Trust was, first, to form each refining company into a corporation. Several of the companies were already corporations, but Havemeyer & Elder, Dick & Meyer, Oxnard Brothers, and Moller, Sierck & Co. were co-partnerships.[6] The aim of this policy, as stated by the refiners, was "to have harmony in the fundamental business basis of each refinery."[7] The next step was to exchange stock in the corporations for trust certificates. Eleven trustees were provided for in the trust agreement, and to these the stock was transferred and checked off before certificates were issued. These eleven persons became the "Sugar Refineries Company," the real Trust.

The method of apportioning certificates among the different companies was one of the points the different investigating committees could not determine. It seems that in a general way schedules were made describing the value of the property. For example, in the case of Havemeyer & Elder, who owned valuable water privileges in Brooklyn, and also valuable lots, diagrams of real property and statements of the improvements were made so that any one by visiting the plant could determine the accuracy of the estimate. In cases of defects of title the parties concerned remedied the defects. The property not embraced in such

[6] House Rep., no. 3112, 50 C., 1 S., p. 9.

[7] This probably means that the men who afterwards became trustees in the "Sugar Refineries Company" hoped to have control by holding a controlling interest in the stock of the various corporations entering the Trust. This would not be possible in a partnership. While the project of trust formation was being agitated, some of the prominent sugar refiners had purchased controlling interest in refineries in which before they had had no interest whatever. They claimed their purpose in doing this was to secure better control of the stock. By this means the controlling interest was limited to the eleven trustees. U. S. *House Report*, no. 3112, 50 C., 1 S., pp. 43-44.

schedules was inventoried and charged to the credit of the old stockholders. Those interested in forming the Trust claimed there was no attempt to capitalize the different plants at figures proportionate to their several values. In some instances the capitalization was less than the value. Certain facts seem to indicate that such an attempt was made. In the case of the North River Sugar Refining Company, Mr. Searles purchased the property for $325,000, the market value, and certificates to the amount of $700,000, less 15 per cent, were issued. Here the certificates were double the value of the stock. In the investigation before the Industrial Commission, 1900, it was brought out that Mr. Doscher, the owner of the Brooklyn Sugar Refinery, which entered the Trust, received somewhere near $3,000,000 in certificates.[8] These sold on the market for fifty cents on the dollar, just half their face value. On the other hand, the statements of the refiners seem to be true, from the fact that Havemeyer & Elder's plant, with a daily capacity of 8,000 barrels, was capitalized at $500,000, while the two plants of the Havemeyer Sugar Refining Company, with a combined capacity of 4,000 barrels, were capitalized at $1,000,000. The plant of the F. O. Matthiessen & Weichers Company, with a capacity of 4,500 barrels, was valued at $400,000.[9] If value of plant bears any relation to capacity, we have evidence here that the refiners were correct in maintaining that each transaction was independent of the others. It is probable that with each company, as has been the case in the organization of many other industrials, the bargain had to be made independently or not at all. In the distribution of certificates it was admitted the stockholders received stock certificates in amounts at least four times the nominal value of the stock surrendered. By March, 1888, there had been $45,000,000 in such certificates issued.[10]

[8]U. S. Industrial Commission *Report,* vol. i (1900), p. 100.
[9]New York, *Investigation of Trusts,* 1897, p. 384.
[10]New York, *Investigation of Trusts,* 1888, p. 42.

§ 4. The purposes of organization as set forth in the trust deed were:[11]

1. To promote economy of administration and to reduce the cost of refining, thus enabling the price of sugar to be kept as low as is consistent with reasonable profit.
2. To give to each refinery the benefit of all appliances and processes known or used by others and useful to improve the quality and diminish the cost of refined sugar.
3. To furnish protection against unlawful combinations of labor.
4. To protect against inducements to lower the standard of refined sugar.
5. Generally to promote the interests of the parties thereto in all lawful and suitable ways.

No doubt there was a real effort to accomplish the last four objects. Experience has proven, however, that causes other than the philanthropy of the Sugar Trust managers have been active in keeping the price of sugar as low as is consistent with reasonable profit. The refiners have consistently kept the price of refined sugar as high as they considered safe in view of the potential competition ready to spring into life at any time. Economy of administration has undoubtedly been accomplished, and, if reports are correct, the labor problem has never been a serious one owing to the large proportion of unskilled workmen that can be used in the refineries.[12]

In addition to the statement of the objects of organization the other leading points in the trust deed were:

1. The agreement that corporate shares should be surrendered to a board of eleven persons having specified powers.
2. The plan that the several corporations should maintain their separate organizations and each carry on and conduct its own business.
3. That the stockholders surrendering their stock should receive certificates signed by the board instead of retaining certificates of stock in their respective corporations. Uniform trust certificates took the place of diversified stock certificates. Each corporation was then to

[11] U. S. *House Report*, no. 3112, 50 C., 1 S., p. 2.
[12] New York, *Investigation of Trusts*, 1897, pp. 444, 1129.

distribute the certificates received among the respective stockholders in the proportion that each one's stock bore to the capital of the company.

4. The profits of each company were to be made over in the form of dividends to the Board of Trustees, who were to distribute them proportionately among the holders of the Trust certificates. In this way the stockholders of a company making no profit would receive a share of the profits of other companies should any be made.

5. As a result of the whole proceeding, the board became the holder of all the stock certificates of the companies embraced within the agreement, at the same time being charged with a trust in favor of the former stockholders or their assigns, as set forth in the certificates which refer to the provisions of the trust deed.[13]

In view of the powers granted to the Board of Trustees, it is interesting to note the statements of Trust representatives in investigations as to their use of such powers. One said that the Trust never had any books that he knew of except a certificate book and a transfer book.[14] There was no cash book because it was not intended to have any cash. Mr. H. O. Havemeyer said the board had no regular place of meeting, were never all present, kept no minutes, took no action. They had a president, however, Mr. T. A. Havemeyer, and a secretary, Mr. John E. Searles. To Mr. H. O. Havemeyer's recollection no votes were ever taken. The substitute for regular minutes consisted of memoranda that Mr. Searles and other gentlemen kept. Their powers were simply advisory and consultative. Even the purchase of new refineries by the board was not formally discussed in meetings. The new refineries were acquired by Mr. Searles' finding out for how much they could be purchased and then obtaining the consent of the different members of the Board of Trustees. They finally met to authorize the purchase. Mr. Havemeyer contended that competition was not to be lessened. The board was to advise refiners as to what lines of credit they were to extend to customers, but not to advise them as to what prices they were to sell their pro-

[13] U. S. *House Report,* no. 3112, 50 C., 1 S., pp. 3-5.
[14] *Ibid.,* p. 27.

ducts at, nor as to what they were to pay for raw material. Mr. Parsons, one of the trustees of the Sugar Refineries Company, stated that when a refinery made profits, instead of distributing them among its own certificate holders it turned them over to the trustees, by whom they are apportioned among the whole body of certificate holders. Mr. Parsons agreed with Mr. Havemeyer in stating that each corporation elected its own officers and managed its own business, and that if any refinery should decide to close down there was nothing to prevent its certificate holders from sharing in the profits of the other refineries. Redress could come only through the courts and not through the contract.[15] Facts indicate, however, that the trustees exercised much more real power than is implied by these statements.

§ 5. The number of stockholders in the original Sugar Trust, or in the later American Sugar Refining Company, has never been large. According to Mr. F. B. Thurber, formerly of the Wholesale Grocers' Association, there were at first just twenty-seven.[16] By the time of the reorganization in 1891 this number had increased to over three thousand. By 1897 it had grown to over nine thousand, and the number to-day is over fourteen thousand. The stockholders have had little to do in shaping the policies of the company, as the settled plan of the directors has been to withhold all information from the stockholders and others that is not called for by the stockholders in a body. So far no request for information has been made in the manner prescribed by the directors. Distribution of stock has not meant distribution of control, and ever since the organization of the Trust, when the few bought out the many, control has been in the hands of the directors.

§ 6. The attempt to control the outturn of refined sugar

[15]Statements made before committee appointed to investigate trusts, 1888, U. S. *House Report*, no. 3112, 50 C., 1 S.

[16]United States Export Association, "Basic Facts," p. 5. (New Y

at that time was only temporarily successful. The first organization had not yet developed any comprehensive scheme for the control of raw material or for the sale of the refined product. Hence the only power they had was such as came from having taken in the greater part of the producing capacity of the country. As soon as the remaining independent plants could expand their capacity or new plants could be started, the old competitive régime was again in full force. A study of prices and outturn just before and immediately following the organization of the Trust shows that the average annual difference between the price of centrifugal sugar and that of refined, made up from monthly averages, was, in 1886, .698c., and in 1887, .685c. In 1888 this margin increased to 1.242c., and in 1899 to 1.252c. But in 1890 it again dropped back to .706c.[17] The cause of the reaction in 1890 is to be found in growing competition. The aim of the Trust stockholders was to keep supply within demand in order to insure a margin of profit for themselves. Hence, in 1888, although their capacity was 34,000 barrels a day, they produced but 23,043 barrels daily. In 1889, with much the same capacity, they produced at the rate of only 19,915 barrels a day. In 1890, with the lowered margin, the Trust averaged 22,748 barrels, with several refineries closed. As against this restrictive policy of the Trust the action of the independents should be noted. In 1888 they ran full capacity, with an average daily production of 8,677 barrels, and again in 1889 they ran to full capacity, with an average of 10,111 barrels. In 1890 they did not run to full capacity. This was probably due to the reduced margin on refined sugar, which was the result of the new policy of closest competition instituted by the Trust.

§ 7. Legal difficulties soon confronted the Trust. On April 16, 1888, certain parties in the State of New York petitioned the Attorney General of the State to bring suit

[17] See Appendix, prices of raw and refined sugar.

against both the North River Sugar Refining Company, which had been taken into the Trust, and against the "Sugar Refineries Company." It was claimed in the former case that the North River Sugar Refining Company was surpassing its powers in delegating them to another body, and in the latter that the "Sugar Refineries Company," while unincorporated under the laws of the State, was assuming corporate powers in the following ways: in having a corporate name; in having a common seal; in contracting obligations in such name; in making by-laws; in having perpetual succession; in holding meetings and electing officers; in acquiring property and holding it by succession; in issuing negotiable certificates of stock; and generally in exercising a monopoly in the production of sugar, and that such monopoly was a public nuisance.[18] Action was brought and finally, in November, 1889, the general term of the Supreme Court in the State of New York handed down a decision confirming the order of one of the lower courts annulling the charter of the North River Sugar Refining Company. The grounds for the decision were chiefly two: first, that the combination made by such a trust was void as a monopoly, and as a virtual conspiracy to hold up prices and to destroy competition; second, that a corporation could not surrender entire control of its franchise to another body. This decision was upheld by the Court of Appeals, and this led the "Sugar Refineries Company" to reorganize in January, 1891, as a single corporation under the laws of the State of New Jersey and under the name "The American Sugar Refining Company;" $50,000,000 capital stock were authorized, $25,000,000 of which was 7 per cent cumulative preferred and $25,000,000 common; $10,000,000 of 6 per cent bonds were also authorized, but never issued.

§ 8. In addition to the four independent companies in existence in 1887 two new plants were started. Claus Spreckels came east from the Pacific Coast to fight the

[18]United States *House Report* no. 3112, 50 C., 1 S., p. 207.

Trust on its own grounds. He located his refinery at Philadelphia, and in December, 1889, was ready for production. By February of the next year he was producing at the rate of 1,500 barrels a day and by the close of the year his outturn was much greater. When running full his capacity was 3,000 barrels a day. Claus Spreckels was evidently the competitor most feared by the Trust. In February, 1891, the Baltimore Sugar Refinery was also ready for production. Thus there were in all six independents, with a total capacity of 15,400 barrels daily.[19] As a result of their continued and increasing activity the per cent of sugar refined by the Trust declined from 72.7 in 1887 to 66.3 in 1888. In 1890, owing to the narrowed margin which caused a smaller outturn on the part of the independents, the Trust product again increased to 67.7 per cent. This comparative decrease in the proportion refined by the Trust, however, does not signify that it was not able to compete successfully with the independent refiners, but that it was definitely trying to control prices by limiting the production while the independents were profiting by the increased price of refined sugar and by their being under no obligation to co-operate in maintaining conditions which rendered a continued margin of increased profit possible.

The advent of Mr. Claus Spreckels into the eastern sugar situation is interesting because of his relation to one of the great sources of raw material and because of the power that relation gave him in competing with the Trust. On the formation of the Trust Mr. Spreckels had been invited to become a member, but had refused. Thereupon the Trust, through the agency of its San Francisco refinery,[20]

[19]See Appendix, p. 117.

[20]The American Sugar Refining Company, Havemeyer and Elder, proprietors. This corporation was not transferred to, but was virtually under the same management, and is generally included in the list of refineries taken into the Trust. Willett and Gray, *Analysis Sugar Trust,* Feb., 1891.

began to fight him. It was then that his power to draw on his own sources of raw material stood him in good stead.

During the sixties he had gone into Hawaii and had begun to buy up sugar plantations. He used every means in his power to gain control of the sugar production there, and had succeeded so well that long before 1887 he was known as the Sugar King of the Sandwich Islands. In 1877, through political manipulation, he secured from the government, for a trifling rent, water privileges which made productive large holdings of his in the plains of Central Maui. In 1882 he obtained a grant of 24,000 acres of Wailuku Crown lands. By the time of his struggle with the Sugar Trust he owned in all about 40,000 acres of Hawaiian land. Of all the sugar produced in the island at that time Mr. Spreckels controlled nearly one-half of the annual output, or about 50,000 tons.

In addition to having such large sources of raw material he also had an interest in a steamship company operating from Hawaii to San Francisco. This gave him transportation facilities, and these advantages, together with the large fortune he had accumulated in the sugar business, enabled him to compete successfully with the Trust until it finally bought him out at his own price.[21]

§ 9. Before the struggle between the Trust and the independents, with Mr. Spreckels as the most important, was ended, two years of severest competition were passed through. From December, 1889, when Mr. Spreckels had his Philadelphia refinery practically completed, until March, 1892, the average margin between the price of raw sugars and that of refined varied from .828c. per pound to .72c. per pound. This margin was but little larger than that prevailing during the years preceding the formation of the Trust. Had not certain other factors entered to lessen the intensity of the competition, conditions more injurious to

[21]See United States *Report of Committee on Foreign Affairs*, 1894, vol. 2, p. 145 *et seq.*, for account of Mr. Spreckels in Hawaii.

the industry than those existing from before 1887 may have resulted. One of the most important counteracting influences was the change in the tariff schedule by the McKinley Act of 1890.

This caused a fall in price of 96° centrifugal sugar from an average in 1890 of 5.451c. per pound to an average of 3.863c. in 1891, and a decrease in the price of refined sugar for the same time from 6.171c. to 4.691c. This reduction in price resulted in an unprecedented increase in the amount consumed. In 1890, 1,522,731 tons, or 54.56 pounds, per capita were consumed. In 1891 the amount was 1,872,400 tons, or 67.46 pounds, per capita. This was an increase over the previous year to 22.96 per cent in the total consumed and 23.6 per cent in the amount per capita, nearly four times the average annual increase for the twenty years 1881 to 1901.[22] This was instrumental in increasing the

[22]The following table will make clearer the relation of the McKinley tariff to consumption of sugar in this country, and consequently to the demand for the product of the refiners:

CONSUMPTION OF SUGAR IN THE UNITED STATES, 1881-1906.

(*From Willett and Gray's Statistical Trade Journal.*)

January 2, 1902, and January 3, 1907.

Year	Tons of 2,240 pounds	Increase over previous year. Per Cent	Pounds. Per Capita	Increase over previous year. Per Cent.
1881	993,552	..	44.2	..
1882	1,061,220	6.8	44.8	9.5
1883	1,170,375	10.3	51.1	5.6
1884	1,252,366	7.0	51.0	0.2*
1885	1,254,116	0.14	49.95	2.1*
1886	1,355,809	8.11	52.55	6.2
1887	1,392,909	2.73	53.11	1.7
1888	1,457,264	4.62	54.23	2.2
1889	1,439,701	1.21*	52.64	2.9*
1890	1,522,731	5.80	54.56	3.6
1891	1,872,400	22.96§	67.46	23.6§

*Decrease.

§Willett and Gray estimated the population for 1891 to be 62,172,000, and 1890 to be 62,517,000. This accounts for the discrepancy in percentages.

margin of 1891 over that of 1890 in spite of the competition and it also enabled the Trust to continue large dividends on its largely increased capitalization.

§ 10. March, 1892, closed the first period of competition undergone by the Trust. It had been brief but severe and was ended by the only logical means then available. That was to buy out the competitors. At that time it purchased controlling interests in the plants of E. C. Knight & Co., of Philadelphia, valued at $800,000; the Franklin Sugar Refining Company, owned by Harrison, Frazier & Co., and the Spreckels Sugar Refining Company, both located at Philadelphia and each valued at $5,000,000, and the Delaware Sugar Refinery, owned by B. H. Howell, Son & Co., also of Philadelphia, valued at $96,000. The Trust also purchased a large proportion of the capital stock of the Baltimore Sugar Refining Company, of Baltimore, Maryland. In order to do this an increase of $25,000,000 in capital stock was authorized. Of this amount $23,546,-

Year	Tons of 2,240 pounds	Increase over previous year. Per Cent	Pounds. Per Capita	Increase over previous year. Per Cent
1892	1,853,370	1.102*	63.76	5.5
1893	1,905,862	2.83	63.83	1.1
1894	2,012,714	5.08	66.64	4.4
1895	1,949,744	3.27*	64.23	3.6*
1896	1,940,086	0.53	60.9	5.2*
1897	2,070,978	6.79	63.5	4.3
1898	2,002,902	3.29*	60.3	5.0*
1899	2,078,068	3.75	61.0	1.1
1900	2,219,847	6.82	66.6	9.2†
1901	2,372,316	6.87	69.7	4.7
1902	2,566,108	8.169	72.8	4.2
1903	2,549,643	0.642*	70.9	2.6*
1904	2,767,162	8.531	75.3	6.2
1905	2,632,216	4.876*	70.5	6.5*
1906	2,864,013	8.806	76.1	7.9

Average annual increase twenty-five years 7.53 per cent.‡

*Decrease.

†From United States Department of Agriculture Year Book, 1898, pp. 722.

‡Based on consumption of 1881 alone. The average annual increase in consumption over previous years is 4.477 per cent.

000 were issued in exchange for the new refineries. This practically eliminated competition again, because, though there were two companies not in the corporation—the Revere Sugar Refining Company, of Boston, and Western Sugar Refining Company, in California, which had been formed in 1891 by the combination of the American Sugar Refining Company, of San Francisco, owned by Havemeyer & Elder, and the California Sugar Refining Company, owned by Spreckels, yet the owners of these companies were stockholders in the Trust and ran their refineries in harmony with it. This gave them at least 90 per cent of the control. The only competition that remained was that of the semi-refined Louisiana sugar, amounting to 100,000 tons annually, which went into direct consumption. The total capacity of the refineries working in harmony in 1892 was 49,500 barrels daily. This was equivalent to an annual capacity of 2,121,300 tons, or 4,752,000,000 pounds. As this capacity was not equaled by the consumption of sugar in the United States until 1900, eight years afterwards, one can see what an immense advantage this added power of limiting production was to the Trust.

The subsequent history of the American Sugar Refining Company has been one of attempting to extend control in the industry and of trying either to crush out or to bring into harmony interests that could not be brought under direct management. A second monopoly had scarcely been secured before new competition sprang into existence so determined that before it was overcome the life of the Trust itself was threatened. On April 11, 1892, immediately after the purchase of the competing plants, the margin between the price of 96° centrifugal raw sugar and that of refined sugar was 1.025c., almost double what it had been during the period of severest competition. The average margin for the entire year 1892 was 1.035c. and for the following year it was 1.153c. per pound.[23] As a

[23] Willett and Gray, *Sugar Trade Journal*, Dec. 27, 1900.

result of the magnificent profits being made at these figures, other refineries were started. In 1891 Cunningham & Miller, of Sugar Lands, Texas, erected a refinery of 600 barrels daily capacity, and Henderson's refinery, with a daily capacity of 300 barrels, was also erected the same year at New Orleans. In 1892 Mollenhauer, of Brooklyn, completed a refinery of 1,800 barrels capacity, and in 1893 the Howells put up a 2,000 barrel refinery at Yonkers and Mr. McCahan another at Philadelphia, also with a capacity of 2,000 barrels. Thus the nominally independent capacity by 1894 was 6,700 barrels daily. It is claimed that competition was prevented between the Trust and the independents by common interests and mutual ownership, but the reduction in the margin from 1.153c. per pound in 1893 to .88c. in 1894, or a decrease of over ¼c., indicates that the opposition was real, even though the independents held stock in the Trust.

This reduction indicates that no agreement existed at that time. Later, in 1896 and 1897, some understanding must have existed. That there was is stated by the Commercial and Financial Chronicle, Vol. LXVII, page 632, when it suggests that the understanding between National, the Mollenhauer and the American Sugar Refining Companies might be "resumed."[24] The New York Journal of Commerce also refers to this agreement.

§ 11. The period of severest competition was that in which Claus Doscher and Arbuckle Brothers took part. In 1858 Arbuckle Brothers had started a wholesale grocery in Pittsburg. In 1870 they began business in New York and made a specialty of roasted coffee. They had invented a machine for packing their coffee in one-pound paper bags or packages, and by means of extensive advertising had made package coffee very popular. It occurred to them

[24]Mr. J. N. Post, a partner in H. B. Howell's Son & Co., stated that he sold Mollenhauer and National Sugar Refining Co.'s sugars. New York, *Investigation of Trusts*, 1897, pp. 309-312.

that selling sugar in the same kind of packages would also be profitable, and as the machine was suitable for either purpose they began to sell sugar in the same way. They secured their material from the American Sugar Refining Company and then put it in their own packages. Things went well for a time until the Arbuckle sugar trade became too prosperous to suit the Trust. Then the Trust wanted to purchase the patent used by the Arbuckles in packing sugar. Arbuckles refused to sell and decided to build a sugar refinery of their own. When the Trust officials heard of this they tried to dissuade Arbuckles from carrying out the plan. Failing in their attempt, they purchased 1,740 shares in the Woolson Spice Company, of Toledo, Ohio, paying $1,905,000 for them, and went into the coffee business to compete with Arbuckles on their own grounds. Arbuckle Brothers began the erection of their sugar refinery in 1896 and began business in September, 1898.

When the struggle began between the Trust and Arbuckles there were three great coffee dealers in this country, *i. e.,* Arbuckles, of Brooklyn and Pittsburg; the Woolson Spice Company, of Toledo, and McLaughlin, of Chicago. Arbuckles controlled about one-fifth of the trade. They tried to buy out McLaughlin, but failed. The Trust on its part organized the American Coffee Company in New Jersey with the intention of starting a plant in the eastern field to compete with Arbuckles there as Arbuckles' Pittsburg plant was competing with it in the central part of the country. As a result of this difficulty with Arbuckles the Sugar Trust has remained in the coffee business to the present time.

Claus Doscher had entered the original Sugar Trust with the Brooklyn Sugar Refining Company. In 1897 he started another refinery independent of the Trust. A strong effort was made by the Trust interests to dissuade him from his purpose, but to no avail. He gave as his reason for carrying out his plan that he wished to establish his sons in the business. Several of the Doscher family were

at that time holding responsible positions under the Trust, but were at once discharged. This new refinery was started in 1897 and completed in 1898. With the advent of these two new plants there were nominally seven independents. In 1895 the United States Sugar Refining Company had been established at Camden, New Jersey, and capitalized at $2,000,000, but the Trust bought it shortly after it was completed. This refinery was never opened, but was sold in 1905 to manufacturers of cereal foods. Later events have shown that this plant had been built on purpose to sell to the Trust. Of the seven nominal independents the outturn of the two southern refineries was so small as to be almost a negligible quantity. Howells, the National, McCahan and the Mollenhauer Sugar Refining Companies were in harmony with the Trust. This left the Doschers and Arbuckles as real competitors, and of these, Arbuckle Brothers were by far the most formidable and determined.

It will be unnecessary to go into details concerning this struggle. The American Sugar Refining Company was cutting the price in coffee as Arbuckles were cutting it in sugar. The margin in refining fell from .946c. in 1897 to .730c. in 1898 and to .500c. in 1899. In 1900 it rose again to .754c., but it was not till 1901 that the average annual margin was back to .903c. As the averages show, 1899 was the severest year of all. Then many times the margin was below the estimated cost of production. Sometimes it was as low as .34c. per pound. The smaller plants made no money and the Trust had to pay its dividends partly from its accumulated surplus. During much of this time the Mollenhauer, the National and Doscher refineries were not running because the margin was not sufficiently large to yield them a profit.

§ 12. In June, 1900, immediately after the refiners had evidently decided to cease following a cut-throat policy of competition, three plants, Mollenhauer, of Brooklyn; the National, of Yonkers, and the New York Sugar Refining

Company, of Long Island City, controlled by Claus Doscher, united under the one name of The National Refining Company of New Jersey. Mr. J. H. Post, F. D. and H. F. Mollenhauer, F. H. Howell, G. R. Bunker, Claus Doscher and H. D. Casey became directors. They issued $20,000,000 stock, one-half preferred and one-half common. By this combination a capacity of 10,000 barrels a day was united. Soon the new organization was working in entire harmony with the Trust. This left only Arbuckle Brothers as real independents. By the new National combination the Trust interests were increased to a total capacity of over 60,000 barrels a day.

Before the conflict was over the losses to the refiners and hence the gains to the public amounted to many millions. The statement of the Trust for the year 1897 showed that its assets had shrunk $15,000,000. Of this amount $7,023,920 went as dividends. Hence, up to the beginning of 1900, the loss to the Trust alone must have been close to $10,000,000.[25] The losses of the independents could not have been much less, and as compared with their capitalization and cost of production they must have felt their losses much more severely than the Trust. This at least was true during the early part of the struggle. Then the Trust was the aggressor. But about February, 1900, the Trust began to weaken and the independents took the aggressive. At first their policy had been to meet whatever advances should be made by the Trust by advances on their own part, and if, on the other hand, the decline should become too great, to close down. But toward the last the independents ceased to meet the prices set by the Trust.[26]

[25]See Louisiana *Planter and Sugar Manufacturer,* New Orleans, Mar. 31, 1900. It is difficult to ascertain accurately such items as these mentioned. The statement given is tentative, rather than as actually true to fact.

[26]See *Sugar Trade Journal,* Feb. 1, 1900, "A. S. R. C. advance prices 5c. per 100. Independents do not follow." The *Sugar Trade Journal* for Mar. 29, 1900, records Arbuckles' unprecedented cut in prices.

By the 1st of March, 1900, the Trust had evidently given up hopes of forcing the Arbuckle Brothers and the Doschers out of business. This marks the beginning of a possibility of a settlement among the refiners.

§ 13. It was some time in May, 1900,[27] before a marked change in prices was noted. Whether a specific agreement was made at that time is not known, but it is certain that so far as cane sugar refining is concerned there has been no severe struggle since. It is probable that Arbuckles are still independent. Reasons for thinking this are derived from several circumstances. In the first place, Arbuckles have shown undoubted independence in the fixing of prices of their product, such prices being dictated by considerations of relations of stock on hand to the demand rather than by any deference to Trust prices. Secondly, even as late as July, 1905, Arbuckles issued a statement as follows: "Since our leading competitors continue rebating to the favored few, we will on September 1 forward rebate checks to all jobbers who have purchased or ordered our sugar from us on contract between July 26 and August 31."[28] Third: Arbuckles have had special terms of sale for the States of Ohio and West Virginia. This fact might indicate a territorial division among refiners, but the fact that sugar from all the different refining companies is sold in those States seems to prove that such is not the case. Fourth: Certain wholesale grocers in Ohio during the year 1906 brought action against the Wholesale Grocers' Association in that State, in the belief that they were attempting to control prices and were working with Arbuckles as against the Trust.

§ 14. The settlement of this sugar war did not end competition for the Trust. Neither did it give the Trust the power to prevent new competition from springing into existence. The various methods used by the Trust in trying

[27] Willett & Gray, *Sugar Trade Journal*, May 24, 1900.
[28] *Ibid.*, July, 1905.

to prevent competition will be discussed in a later chapter. As has been seen, even in the refining of cane sugar new plants were being erected continually, and with each new plant an additional burden was being added to the Trust. The aim of the Trust was to keep supply within demand and thus insure a comfortable margin for the refining industry. But whenever this margin became large enough to insure profits to the small producer, capitalists were not lacking who were ready to venture into the business. Those who went into it for profit took advantage of the Trust's policy and ran full capacity, thus getting the benefit of the policy without bearing the burdens. Through the changes brought about during the sixteen years of the history of sugar refining, from 1887-1903, by additions to the Trust and combination of plants within it, and by the organization of new companies, the status of the industry in the latter year, beet sugar refineries excepted, was as follows:

Plants	Daily Capacity
Havemeyer & Elders, Brooklyn	12,500
Matthiessen & Weichers, Jersey City	4,500
Standard Refinery, Boston	4,000
Franklin Sugar Refinery, Philadelphia	7,000
Spreckels Sugar Refinery, Philadelphia	6,500
American Sugar Refinery, New Orleans	7,000
Western Sugar Refining Company (½), San Francisco	1,350
Total active plants	42,850
Greenpoint Refinery, Brooklyn	3,000
Portland Refinery, Portland, Me.	500
St. Louis Refinery, St. Louis, Mo.	1,000
Baltimore Refinery, Baltimore, Md.	3,000
Camden Refinery, Camden, N. J.	2,000
Total inactive plants	9,500
Total Trust	52,350

Plants	Daily Capacity
National Sugar Refining Company, Brooklyn.....3,000	
Yonkers 3,000	
Long Island City 4,000	
	10,000
Arbuckle Brothers Refinery, Brooklyn	4,000
W. J. McCahan Sugar Refining Company, Philadelphia.....	3,000
Revere Sugar Refining Company, Boston	1,200
W. Henderson, New Orleans	1,000
F. R. Cogswell, New Orleans	300
E. H. Cunningham & Co., Sugar Lands, Tex.	500
California and Hawaiian Sugar Refining Company, San Francisco	1,500
Western Sugar Refining Company (½), San Francisco.....	1,350
Gramercy Sugar Company, New Orleans	1,000
Federal Sugar Refining Company, Yonkers.....	500
Penna. Sugar Refining Company, Philadelphia	3,500
Total non-trust	27,850

In addition to these companies the American Sugar Refining Company of New York was incorporated at Albany, November 14, 1901. The capital was $3,500,000, divided into 35,000 shares. This was subsidiary to the American Sugar Refining Company of New Jersey, the latter acting as a holding company, owning all the securities of the New York corporation. This company is not mentioned in the above list because it did not involve the building of new plants and was merely the instrument of the Trust for more conveniently carrying on its business.[29]

§ 15. Harmonious relationship brought about by stockholding in the different companies by prominent Sugar Trust stockholders justifies some revision of the above statement. Of the so-called independents it is generally recognized that the National Sugar Refining Company, formed in 1901, the Revere Sugar Refining Company, of Boston; the Western Sugar Refining Company, of San Francisco, and the Federal Sugar Refining Company, in which Claus

[29] *Sugar Trade Journal*, Oct. 24, 1901.

Spreckels had a large interest, which has since been enlarged to a capacity of about 4,000 barrels a day at its Yonkers plant and has also organized a $6,000,000 refining company in Canada, were in harmony with the Trust, and the others were not strongly antagonistic. This made the real Trust control at that time 69,400 barrels out of a total of 80,200 barrels daily capacity, or 86.5 per cent. The probabilities are that in 1903 the amount controlled, either directly or through stock ownership, by prominent Sugar Trust officials was several per cent higher than this. Mr. Havemeyer estimated before the close of the sugar war in 1900 that even then the Trust controlled 90 per cent[30] of the outturn, and it is not likely that under more favorable conditions that they were unable to control as much. Since 1903 the only new competition that has appeared has been that of the Sugar Factors Company, of Hawaii, which has purchased a refinery in California and is now refining sugar independently of the Trust. Further reference to this company will be made when the Hawaiian sugar situation is considered.

[30]U. S. Industrial Commission *Report,* vol. i, p. 108. See also *Louisiana Planter,* Aug. 12, 1899.

Chapter V.

SUBSIDIARY INTERESTS OF THE SUGAR TRUST.

§ 1. The control of the refining of cane sugar has been but a part of the problem with which the Trust has had to deal since 1900. It has been found necessary to branch out into several other lines of business activity. With some of these it had definitely begun before that time. With others it seems that but little was done until a later period. Of all its interests the most important were the coffee industry, the cooperage industry, the beet sugar industry, the glucose sugar industry and the attempt to control the production of raw cane sugar. To the coffee industry but little attention need be given, because it is not directly concerned with the refining of sugar. The American Sugar Refining Company was drawn into the business through competition with Arbuckle Brothers, and has remained in it ever since. The Trust interests in the cooperage business consist of the control of the Brooklyn Cooperage Company. It also has control of the Brooklyn Transportation Company, which does its trucking.[1] The control of these local companies is one of the means of economy used by the large companies. Although important and interesting in itself, further consideration of it must be omitted in view of the larger tasks with which the Trust has been concerned that must occupy attention. The control of the beet sugar industry and of the glucose sugar industry can be estimated with some degree of certainty. It is next to impossible to get information on the control the Trust has acquired in the production of raw sugar, but enough has been said to make it pretty certain that more progress has been made in this

[1] New York *Evening Post*, Nov. 16, 1906.

line than most people think. The growth of control in the beet sugar industry will first be traced.

§ 2. Of the possible competitors of refined cane sugar, *i. e.*, maple, sorghum, glucose and beet sugar, the last has achieved the most conspicuous success. And yet it has been a comparatively late factor in the problem in this country. In Europe and in the world market it has long held a position of constantly increasing importance with reference to cane. This has been largely due to a system of bounties that had been organized in Europe under the régime of Napoleon I, in 1806. His purpose in establishing bounties was to cripple England's sugar industry and to give employment to French soldiers. The successful working of the system in France forced the other European countries to follow her lead, so that before many years most of them were encouraging the production of beet sugar. It was many years, however, before beet sugar became an important item in the world problem. In 1853-1854 the total production of the world was only 201,000 tons, or about 14.1 per cent of the total sugar outturn of that year. From that time until the Brussels Convention, which went into effect September 1, 1903, it increased until it formed the larger per cent of the total production. The average per cents for five-year periods from 1853 to the present have been:[2]

Years	Per Cent	Years	Per Cent
1853-1858	16.6	1878-1883	46.7
1858-1863	21.1	1883-1888	47.8
1863-1868	28.5	1888-1893	54.3
1868-1873	34.1	1893-1898	58.7
1873-1878	41.8	1898-1903	60.6

This increase in per cent represented an actual increase from 201,000 tons annually in 1853-1858 to 6,653,518 tons in 1901-1902; the maximum year immediately preceding

[2]Statistics for world sugar production taken from United States Dept. of Agriculture, *Bulletin* no. 30, pp. 11, 12.

the Brussels Convention. In America the course of beet production was much more tardy. This was due partly to the fact that this country had an abundant supply of raw material of cane sugar at hand from the West Indies, partly because other industries paid so well that there was but little incentive to beet culture and partly because the United States Government in its efforts to promote home grown sugar paid little attention to sugar beet culture and until the eighties attempted to make successful the growth of sorghum as a source for the raw product.

§ 3. Until 1879 the history of the American beet sugar industry is a record of failure. The first experiments were made in 1830. There is no record of the quantity of sugar manufactured. In 1838-1839 David Lee Childs conducted small works at Northampton, Mass., and made 1,300 pounds of sugar. Then he discontinued the manufacture. There is no record of further attempts till 1863, and from that time until 1876 a number of failures occurred in California, Illinois and Wisconsin. The first factory in California was erected at Alvarado. These works were operated until 1873, when they were removed to Santa Cruz County, that State. This plant was abandoned about 1880. Alvarado later became the location of another factory, which was the first successful one in the country. The Alvarado experiment was important in that it encouraged the beet sugar industry throughout the United States.

In 1879 there were four beet sugar factories in operation. Of these, two were in California, one in Maine and one in Delaware. Before 1887 the annual production was but little over 600 tons. In 1888 it increased to 1,910 tons, and from that time to the present has shown a rapid increase, until in 1906 the consumption was 300,317 tons, or 672,710,080 pounds, produced from fifty-three plants located largely in the Western States and in Michigan.[3] As compared with the total consumption of the United States this

[3] *Sugar Trade Journal*, Jan. 3, 1907.

was very small, less than 11 per cent, but the possibilities of beet culture in this country made it desirable for the Trust to obtain control. Unlike the culture of cane, which is confined almost exclusively to the State of Louisiana, beet culture is possible in a broad belt 200 miles wide extending across the entire continent. It includes portions of the States touching the Great Lakes and extends westward through Minnesota and Iowa into the Dakotas, thence southward through Nebraska, Colorado and New Mexico, and then includes practically all the States of Washington, Oregon, Idaho, Utah, California and Nevada. Such possibilities in raw material opened a rich field for future activities by the Trust.

§ 4. The situation in which the refiners found themselves in 1901 cannot be better expressed than by a quotation from the Sugar Trade Journal. In the issue for October 7, 1901, it says:

"To-day a surprise awaited the trade in the western sections of the country when the quotations by the American Sugar Refining Company were reduced to 3½c. per pound for points along the Missouri River, which at present is the largest market for the beet sugar produced in the Far West. The notable feature of this movement is that the quotation is on a level with the parity of raw beet sugars on the present basis of 3¾c. for cane centrifugals. In other words, it would seem that the refined sugar interests of the country feel compelled to protect their interests to such an extent that the domestic beet sugar industry may not make any larger profits on the making of refined than would come to them from the manufacture and sale of raw sugar. We have always taken the stand that the manufacture of raw sugar for sale to the refiners was the proper and legitimate business of the beet sugar industry in the United States, this being the rule in Germany, the greatest beet sugar country of the world. We have thus foreseen the natural result of an attempt on the part of beet sugar interests to force the refiners out of their business of such long standing by turning their product into refined sugars in competition with refiners already established, who have no means of securing raw sugars by production, but are forced to buy them in the open market."

This is practically the initial complaint of the refiners in the next competition that faced the Trust and independ-

ents alike. This new competition was the more serious in that the beet sugar men had taken advantage of the economies possible in refining sugar in a single plant at the source of raw material. And there exists here as well a clue to much of the future activity of the Trust in going into the field of production of raw material both in beet and cane sugar.

It is difficult to say who were the real aggressors in the beet sugar war. The passage quoted indicates that the Trust opposed the beet sugar men going into the refining business. The beet sugar men saw in the cutting of prices an attempt on the part of the Trust to kill the beet sugar business in this country. They pointed to the fact that the Trust had recently increased its capitalization $15,000,000, with the reported purpose of entering the raw sugar fields in Cuba and Porto Rico. They also pointed out that the Trust interests were flooding the country with pamphlets intended to stir up public sympathy with the unfortunate Cuban to the extent that sugar would be admitted free of duty. They claimed that it was not the Cuban, or the American either, that the Trust was trying to help, but that it wished free raw sugar for its own interests. The beet sugar and the refiners' papers were both active in attempting to influence public opinion, while the Cuban reciprocity bill was under discussion. The competition became so serious that beet sugar was shipped into and sold in the centers of cane refining districts. At some points in the central part of the country where the Trust tried to compete by cutting prices the beet sugar men gave orders to their agents to buy up all the sugar that was offered at low figures. The Trust refused to sell unlimited quantities to single purchasers and soon raised its prices.

But, like the other troubles the Trust had encountered, this last was settled by the Trust harmonizing the interests of its competitors with those of itself. Suddenly the opposition of the American Beet Sugar Company to the Cuban

reciprocity treaty ceased. The Trust had bought a controlling interest in the beet sugar companies, and was again ready to turn its attention to other problems.

§ 5. Before the Trust entered the field several important companies had already developed large interests. The four factories in operation in 1879 had increased by 1893 to six and by 1900 to thirty-one. Of these the ones under the control of the American Beet Sugar Company, mentioned above, were the most important. This company had been organized in 1899 and united the Oxnard interests in factories located at Grand Island and Norfolk, Nebraska, and at Chino and Oxnard, California. These four factories had a total beet capacity of 3,700 tons per day. During the following year this capacity was increased to 4,700 tons by the building of a 1,000-ton plant at Rocky Ford, Colorado.[4] When organized the American Beet Sugar Company issued $5,000,000 6 per cent preferred stock and $15,000,000 common.[5] The new Trust also purchased 7,500 acres of land near its refineries in California, and Mr. Oxnard stated that it had purchased 80,000 acres in the Arkansas Valley, Colorado, for further development.[6] The other important plants were those controlled by stockholders in the Sugar Trust. Mr. Spreckels had interests in the Western Beet Sugar Company at Watsonville, California, with a capacity of 1,000 tons, and in the Spreckels Sugar Refinery, 3,000 tons, at Salinas, California. The remaining plants were small, crushing from 200 to 500 tons daily; 300 tons seems to have been in times past the favorite sized plant among beet

[4] A circular issued by the American Beet Sugar Company, Jan. 20, 1906, omits the name of the factory at Norfolk, Neb., and gives that of another at Lamar, Colo. The total capacity is approximately the same. The company owns 10,000 acres in the Arkansas Valley, Colorado. During the season 1906-07 145,000,000 pounds of sugar were produced. See *Commercial and Financial Chronicle* (1906), vol. 82, p. 570.

[5] *Ibid.*, Feb. 11, 1899.

[6] *Ibid.*, Aug. 3, 1901.

sugar men. Those best acquainted with the industry state that 600 tons seem to be the best suited to the present stage of sugar culture. The larger plants are likely in beginning to suffer from lack of raw material. This is especially true if the first years are not successful. The conservative farmers abandon beet culture for more certain crops.

The extent of the control of the American Sugar Refining Company in beet sugar at the present time is not definitely known. The best information available is that in 1905, out of a total of fifty-seven active factories, the American Sugar Refining Company was supposed to hold one-half or a controlling interest in thirty-five factories, representing a capacity of 28,700 tons of beets daily, while the independent companies had twenty-two plants with 13,150 tons capacity. This placed the Trust in virtual control of 68.7 per cent of the beet sugar produced in this country. For the campaign of 1906 twelve new plants were building, with a daily capacity of 9,250 tons, and of these the American Sugar Refining Company had an interest in at least five with 3,000 tons capacity, or about 39 per cent of the total. If all the investments of the Trust, as such, or if the holdings in beet sugar by prominent Trust stockholders were known, the probabilities are that this per cent would be greater still.

The leading consolidations within the beet sugar industry itself, all of which are subsidiary to the American Sugar Refining Company, are: The American Beet Sugar Company, already mentioned, with a capital of $20,000,000; the Amalgamated Sugar Company, capitalized at $4,000,000[7] and controlling four plants with a total daily capacity of 2,000 tons, and the Utah-Idaho Sugar Company[8] formed in 1907 from the Utah Sugar Company and the Western Idaho Sugar Company, and capitalized at $13,000,000,

[7]Consolidated 1902. *Commercial and Financial Chronicle,* vol. 75, p. 186.

[8]*Ibid.,* vol. 75, p. 1403.

$10,000,000 of which is preferred and $3,000,000 common stock. T. R. Cutler is vice-president and general manager, and H. G. Whitney, secretary and treasurer.[9] In addition to these three the Trust holds a controlling interest in the Michigan Sugar Company, which controls six plants and whose total capitalization is $12,500,000.[10] It is also supposed to control in at least three other Michigan companies. There is also the Great Western Sugar Company, which started in 1901 under the name of the Western Construction Company, with a 1,200-ton plant at Loveland, Colorado,[11] and which now has nine plants in Colorado aggregating a total capacity of 7,400 tons of beets daily. The different plants under its control were brought into one organization by the incorporation of the Great Western Sugar Company, on January 12, 1905, at Trenton, New Jersey, with a capital stock of $20,000,000. This was divided into common and preferred, the latter being non-cumulative 7 per cent. May 26, 1906, this capitalization was increased to $30,000,000. Until his death Mr. H. O. Havemeyer was president. The Spreckels Sugar Company, of Spreckels, California, with a capital of $5,000,000, completes the group of highly capitalized beet sugar interests.[12] It is noteworthy that the very large capitalizations occur in companies dominated by the Trust. These six companies have a combined capital of over $84,000,000, or averaging $14,000,000 to the company. The independents have been satisfied with more moderate capital, from $300,000 to $600,000 being considered a fair amount. It is said the large capitalization of Trust stock is for investment among local business men to the extent of one-half of each capital stock. It would seem, however, that such investment could

[9] See *American Sugar Industry and Beet Sugar Gazette,* August 5, 1907.

[10] *Commercial and Financial Chronicle* (1906), vol. 83, p. 1039.

[11] *Beet Sugar Gazette,* Jan., 1901, p. 20.

[12] *Louisiana Planter,* March 11, 1899.

be made with smaller capitalization and that speculative purposes afford some motive for the larger capitalization.

§ 6. The second side line into which the Trust has been interested through its stockholders, if not as a corporation, is that of the manufacture of glucose sugar, or the manufacture of sugar and starch from corn. It is said that it has been largely through stock held by the Matthiessen family, in both the Sugar Trust and in the glucose sugar refining companies, that these two groups of sugar manufacturers have been kept in harmony, and through the mediation of prominent members of the Standard Oil Company. In order to understand this connection it will be necessary to trace briefly the development of the glucose industry. This will be profitable because it shows, though on a smaller scale than in the refining of cane and beet sugar, the attempts of a Trust to control production and the difficulties to be overcome.

Not over thirty years ago there were about fifty glucose concerns in the United States, scattered over the great corn belt. These, because of crude methods and other reasons, dwindled down to five or six, and the remaining ones were making no money because of severe competition. This was the condition when, on August 3, 1897, the Glucose Sugar Refining Company was incorporated at Trenton, New Jersey. It absorbed the following companies:[13]

Plant	Daily Capacity Barrels
Chicago Sugar Refining Company, Chicago, Ill.	26,000
American Glucose Company, Peoria, Ill	26,000
Peoria Grape Sugar Company, Peoria, Ill.	15,000
Rockford Sugar Refining Company, Rockford, Ill.	16,000
Davenport Syrup Refining Company, Davenport, Iowa	9,000
Firminick Manufacturing Company, Marshalltown, Iowa	9,000
Total, six plants	101,000

[13]These figures and the following ones concerning the glucose sugar refining industry are taken from various issues of the *Commercial and Financial Chronicle*, New York.

Its capitalization was $40,000,000, $14,000,000 of which were preferred and the remaining $26,000,000 were common. The preferred was 7 per cent cumulative and entitled to equal participation in all profits beyond 7 per cent on the common stock. It was denied that the Trust had any interest in this newly organized combination, but its president was C. H. Matthiessen, and on its Board of Directors were C. H., F. O. and E. A. Matthiessen. Other important stockholders at that time were J. P. Morgan, Marshall Field and Harriman & Co. The only independent companies left were the National Starch Company, of Glen Cove, Long Island; the Charles Pope Manufacturing Company, of Venice and Genoa, Illinois, and the United States Sugar Refining Company, of Waukegan, Illinois. The United States Sugar Refining Company was first known as the American Glucose Sugar Refining Company, which had been formed in January, 1898, by a consolidation of the American and Imperial Glucose Sugar Refining Companies. It has a capital stock of $3,000,000 and a capacity of 15,000 barrels daily. The National Starch Company, on December 31, 1898, had outstanding $8,516,900 in stocks and $4,237,000 in bonds.

In June, 1899, the United States Glucose Company was formed in New Jersey for the purpose of taking over the plant of the United States Sugar Refining Company, and of increasing its capacity from 15,000 to 25,000 barrels daily. The United States Glucose Company did not buy the United States Sugar Refining Company out completely, but acquired $1,811,600 of its $2,000,000 capitalization. In December, 1899, the latter company had reduced its nominal capital from $2,000,000 to $10,000. But in the statement of capitalization of the National Starch Manufacturing Company, of which the United States Sugar Refining Company was then a part, given in April, 1900, the capital was still considered as $2,000,000. In this transaction of reducing capitalization the American Sugar

Refining Company, as the holder of 9,900 common and 7,000 preferred shares of the United States Sugar Refining Company's stock, participated. This transaction made public the fact that the Trust had a direct interest at least in a subsidiary company.

In April, 1900, a new combination was announced, the National Starch Manufacturing Company, which was intended to unite the following companies:[14]

Companies	Stocks	Bonds	Total Capitalization
National Starch Company.....	$8,516,900	$3,000,000	$11,516,900
United Starch Company	5,050,000	1,250,000	6,300,000
U. S. Glucose Company	1,811,700	.....	1,811,700
U. S. Sugar Refining Company..	2,000,000	1,000,000	3,000,000
Total, four companies.....	$17,378,600	$5,250,000	$22,628,600

For this property it was proposed to exchange $13,500,000 in stocks. In addition it was proposed to acquire the plants of many manufacturers who had gone out of business at earlier dates. There were eleven of these in all, nine of them having been established before 1880 and four before 1860. They were located in New York, Indiana, Ohio and Nebraska. It should be remembered that these consolidations so far traced have as yet nothing to do with the Glucose Sugar Refining Company organized in 1897. These are consolidations of independent plants.

The various movements finally culminated early in 1902 in one grand amalgamation under the name of the Corn Products Company. This new combination capitalized at $80,000,000 and expected to have a total capacity of 250,000 bushels of corn daily. The statement issued by the new company gives a list of the constituent companies and their relative values. The first was the Glucose Sugar Refining Company, organized August, 1897, with plants at Chicago, Peoria and Rockford, Illinois, and at Marshalltown and Davenport, Iowa; total capacity, 105,000 bushels

[14] *Commercial and Financial Chronicle*, vol. 70, p. 742 (1900).

daily. Of $37,666,600 stock issued by this company, the Corn Products Company had acquired $34,145,700, and in lieu of this had issued $42,682,125 in common and preferred stock. The second company was the National Starch Company, organized May, 1900, with plants located at Glen Cove, Long Island; Buffalo, New York; Cincinnati, Ohio; Indianapolis and Elkhart, Indiana; Waukegan, Illinois; Des Moines and Sioux City, Iowa, and at Nebraska City, Nebraska; total capacity, 43,000 barrels. Of the $6,624,200 of stock issued, the new company acquired $6,097,600 and issued $5,670,435 of their own stock. The third company, the Illinois Sugar Refining Company, capacity 15,000 bushels, which had been incorporated in 1898, was acquired in entirety, $750,000 being all secured. Entire control of the Charles Pope Glucose Company, capacity 15,000 bushels, was also secured. But of the New York Glucose Company, 23,000 barrels, which was a subsidiary company of the National Starch Company, only $1,225,000 of the $2,500,000 was secured. This was 49.7 per cent, not quite a controlling interest. This one point was destined to overthrow the power of the whole consolidation and eventually to place it in the hands of those interested in the Sugar Trust.[15]

§ 7. This last combination united practically all the glucose interests in the country. The only companies independent as late as 1905 were the Warner Sugar Refining Company, of Waukegan, Illinois, with a capacity of 25,000 barrels, and Peel Brothers, of Indianapolis, Indiana, who had sold out to the Corn Products Company and started another factory at Indianapolis, Indiana. In May, 1906, the report was made that the Warner plant, with other new plants that had started, had gone under the control of the Trust. The only limitation to be made of the Corn Products Company consolidation lies in the changes that became necessary because of minority control of the New

[15] *Beet Sugar Gazette*, Jan. 20, 1906, p. 13.

York Glucose Company. It is stated that this was one of the most peculiar situations existing in any corporation in the United States, the Corn Products Company having at times engaged in a war with one of its constituent companies. As Standard Oil interests retained the rest of the stock and secured it in a holding company so it could not get away, they were in a position to keep the Corn Products Company from getting anything from its holdings in New York Glucose Company stock and to operate the new modern plant of this latter company so as to leave little margin for the other for its own operation. This finally caused the Corn Products Company to sell out to the Standard Oil interests. Those interests in the Sugar Trust, on the other hand, date back to 1901, when the plant of the Glucose Company was begun. Then it was reported that Standard Oil interests were about to enter the sugar business to compete with the Sugar Trust. Soon American Sugar stock fell from 155 to 103.5, and prominent Standard Oil stockholders bought heavily of sugar stock and became among the main holders. Then the new refinery was turned into a glucose plant. This version of the relation of the American Sugar Refining Company to the glucose sugar refining industry is based only on newspaper report; but, if true, it furnishes through the mutual holdings of Standard Oil people in both sugar and glucose, another and a very strong incentive for harmonious action.

§ 8. The actual situation of the Sugar Trust in the field of production of raw cane sugar cannot be definitely stated. Much of the material available on this subject is suggestive of possibilities rather than fruitful in information as to what has already been done. In some ways it is greater now than in the past and in others it is less. But it is the undoubted policy of the Trust to acquire as great a control as possible of the sources of cane sugar. It may be that in the struggle between beet and cane sugar refiners, 1900-1902, the Trust was as much the aggressor as the other

side in that it was even then proceeding to carry out its policy of acquiring control of all sources of raw material.

§ 9. In carrying out this policy the Trust interests find their main problems limited to certain definite countries. The United States cane sugar producing sections, Louisiana, Porto Rico, Hawaiian Islands and the Philippines produced in 1905 1,005,000 tons, and Cuba produced 1,300,000 tons. Together these two countries produced 2,305,000 tons, or nearly one-half of all the cane sugar produced in the world. The other important lands producing cane sugar are Demerara, Peru, Argentine Republic and Brazil, in South America, totaling 665,000 tons; Queensland, in Australia, 163,000; Mauritius, in Africa, 200,000, and Java, in the East Indies, 990,000 tons. While cane sugar is produced over a much wider area than this, the total production elsewhere is comparatively small.[16] These figures are for the production for world consumption. An analysis of the imports of raw sugar into the United States, practically all of which goes into the hands of the refiners, shows that so far as this country is concerned the sources are not as wide as is shown in the above. Of the raw cane sugars not above No. 16 Dutch Standard imported into the United States in the ten years (1894-1904)[17] Denmark, France, Germany, Netherlands, British Honduras, Dominion of Canada, Venezuela, Japan, French Oceanic, Chile, Colombia, Ecuador, Hayti and the French West Indies all together sent only 9,000,000 pounds out of a total of about 32,000,000,000 pounds imported, and their contribution of refined sugar is much less in proportion. The other countries in the order of their importance are Cuba, Dutch East Indies, British West Indies, Brazil, British Guiana, Santo Domingo and the Philippine Islands, and the others with an average of not over 10,000,000 pounds a year each are the United Kingdom, Guatemala, Nicaragua, Salvador, Danish

[16] *Sugar Trade Journal*, Jan. 4, 1906.

[17] U. S. *House Document*, vol. 39, 58 C., 3 S., pp. 252-256.

and Dutch West Indies, Argentina, British East Indies, Chinese Empire, Hong Kong and Egypt. This analysis shows how scattered the sources are and yet how small an amount comes from such a scattered area. The great sources are Cuba and other West India islands, the Dutch East Indies, with Java as the principal source of the group, and Brazil. The importance of these divisions as compared with all other sources is shown by the fact that in 1904 they furnished 3,570,787,000 pounds out of a total of 3,681,904,214, and of this amount Cuba sent 2,819,557,727, or 76.6 per cent. Thus the problem of control of the production of raw material by the Trust through stockholders, if not as a corporation, lies largely in securing a controlling interest in the development of the raw sugar resources of Cuba, Louisiana, Porto Rico, Hawaii and the Philippines.

§ 10. The Trust has found an additional reason in the international sugar situation for carrying out this policy. Before 1902 the refiners found a large source of their supply in European beet sugar. But with the Brussels Convention and the breaking up of the sugar cartels in Europe, the price of raw beet sugar rose to a point that threw the American trade to cane sugar producing countries. During the ten years 1894-1904 Germany was by far the leading source for beet sugar, with Belgium second and Austria-Hungary third. Other countries have contributed also, but in comparatively small amounts. The amount imported from year to year has varied according to the sources of cane supply. Thus Germany, in 1896, sent us 499,922,637 pounds; in 1897, 1,611,401,968; in 1899, 654,843,277. In 1902 this amount had dwindled to 203,000,000 pounds, and in 1903 only 2,414,037 pounds came from Germany. Belgium's average export to this country during the same period was 62,000,000 pounds, with a maximum of 130,000,000 pounds, in 1897. Austria-Hungary averaged annually 56,000,000 pounds, with a maximum in 1901 of 145,000,000. Since the Brussels Convention the total importation

of raw beet sugar has fallen very rapidly. In 1903 the total was 87,130,805 pounds. In 1904, 2,414,454 pounds.[18] These circumstances, together with tariff legislation favoring the importation of raw cane sugar, have turned the attention of refiners very strongly toward the development of the raw cane sugar industry.

In order to understand why Cuba, Porto Rico and Hawaii have become of increasing importance to refiners as sources of raw material, it is necessary to look into the causes of the decline in raw sugar imports from Europe. As has been seen, up to the time of the Brussels Convention these were of increasing amount. This increase was due to overproduction of sugar in Europe resulting from the combined influence of the bounty system and the "cartels." As this influence tended in much the same direction in all sugar producing countries of Europe, though with varying local conditions, a brief sketch of the system in but one country will suffice. Germany is the typical state for such study. The tendency of legislation was to increase the production faster than the demand in any particular country. Thus, before the Brussels Convention, no less than two-thirds of the total sugar outturn of Germany and three-fourths of the product of Austria-Hungary was exported. On the legislative side the cause for this remarkable growth lay in the fact that the tax on beets raised was on the quantity of beets, while the drawback paid was on the quantity of sugar. This led to the study of how to increase the production of sugar per given quantity of beets. This study was so productive of results that the increase in amount of sugar exceeded the reduction of the drawback from time to time. From September 1, 1869, to July 31, 1886, the beet tax in Germany was fixed at 17c. per 100 pounds. Raw sugar exported received during the first part of the same period, or to 1883, $2.03 per hundred pounds drawback. The aim of the government was not to

[18]U. S. *House Documents,* vol. 39, 58 C., 3 S., p. 252.

place a premium on exports, but to make the rate such as would equalize the drawback with the beet tax. During the earlier years the beet tax was in excess of the export drawback, but improved methods soon changed this situation. By 1882 the quintal of sugar received 2.06 marks more than the amount of the tax. This was equivalent to a bonus of 22c. per hundred pounds in addition to the refunding of the excise. From August 1, 1883, to September 30, 1887, the drawback was reduced from $2.03 per hundred pounds to $1.94 per hundred. But even then the continued improvement in beet culture gave the producers a good margin. During the season 1887-1888 the change in proportion of the tax on beets and sugar yielded the exporter a virtual bounty of 46c. per hundred pounds. As sufficient revenue was not accruing to the government owing to the excessive drawbacks that had to be paid, a change was again made in 1888, and the beet tax was reduced to about .09c. per hundred pounds and the drawback to .92c. per hundred pounds. In 1892 the beet tax and the drawback were definitely abolished, and the consumption tax was increased to $1.94 per hundred. The exporter now got a direct bounty instead of the previous hidden one. This amounted to 13c. per hundred on raw sugars and a higher rate on refined. In 1896, when the final change was made, the bounty on raw sugar was made .27c. per hundred, and the consumption and import taxes were also increased.

The legislation in Germany is illustrative of the government aid that was being given in Austria-Hungary, Russia, France, Belgium, Netherlands and the other less important beet sugar producing countries of Europe. The inevitable result was overproduction, leading to lowering of prices to foreign buyers. This situation was intensified by the action of the "cartels" already mentioned which existed in all the leading European countries. In Germany the cartel gained control in 1900, in Austria-Hungary about 1897. and in Spain and other countries about the same time. The

German "cartel" will be taken as typical of the development of sugar combinations in Europe. There control of the industry was obtained by the refiners by a triple agreement involving, first, a combination among the refiners; second, the organization of the raw sugar producers; and, third, an agreement between these two. The factories that produced only raw sugar from beets and those that produced refined sugar from beets joined the raw sugar cartel, while the latter class was also joined in the formation of the refiners' cartel with those that produced refined sugar from purchased molasses, and those that produced refined sugar from raw sugar purchased from other producers. The agreement between the refiners and the raw sugar producers covered the following points:

The raw sugar factories agreed to make directly no refined sugar for the internal market and to sell their product only to members of the refiners' cartel. The refiners on their part agreed to purchase their raw product exclusively from cartel factories. They also agreed that whenever the Magdeburg price fell below $2.75 per 100 pounds, they would pay to the raw sugar cartel for subsequent distribution among factories the difference, not to exceed 73c. per 100 pounds, between the average price for the month and the normal price of $2.75. By this agreement the profits that came to the participants consisted in those made by the refiner in selling to the home consumer; by the raw sugar producer in having his price brought up to $2.75 per 100 pounds, and by the total bounty received on exported sugar, both raw and refined. The cartel was limited in its action to the home market.

The combined effect of the cartels and of the bounty system was that within the bounty fed countries the people were burdened by the high price of sugar; without, people were enjoying the lower price of sugar because of the returns received from government by European producers on each pound exported. The European producers could

sell at low prices in foreign countries and make more than if they limited themselves to the home market.

So far as refined sugar is concerned it had comparatively little influence in this country. The export price had its most pernicious effect on the refiners of England, since German home prices from 1884-1903 were, on the average, about 6c. per pound while export prices in 1899-1890 f. o. b. at Hamburg were 3.49c. per pound; in 1892-1893 they were 3.82c., but by 1902-1903 they had fallen to less than 2c. per pound. The English consumer was benefited at the German taxpayers' expense, but the English sugar refiners were driven out of business. America was concerned with the export prices of raw sugar, which showed a still more marked decrease. From 4.53c. per pound in 1882-1883 the Hamburg f. o. b. price fell to 3.29c. in 1892-1895, and in 1901-1902 was 1.51c.; in 1902-1903 it rose to 1.67c. When these prices are compared with the stipulated $2.75 per hundred price paid by the refiners to raw sugar producers, it becomes clear wherein the home consumer was paying taxes to give the people of foreign countries cheaper sugar. These prices account very largely for the increased importation of European sugar into the United States. The Brussels Convention and the consequent abolition of bounties and of the cartels, resulting in increased prices of European raw material, also help to explain why Europe has declined as a source and why Cuba has become of increasing importance.[19]

§ 11. Changes in method resulting in economies as marked as those to be found in the refining process have been going on in the production of raw sugar, and these changes tend to simplify the problem of control for the refiners. The tendency to overproduction of raw cane sugar, and the growth of the beet sugar industry throughout the world, has forced down the prices of raw sugar in

[19]For general discussion of cartels, see Rutter, *International Sugar Situation*. U. S. Bureau of Statistics *Bulletin* no. 30, 1904.

such a way that the discovery of means for cheaper production was necessary for continued profits. The same tendency towards fewer and better manufacturing plants, as seen in the refining industries, has been at work in the production of raw sugar in Louisiana as well as in Cuba and Porto Rico. During the earlier part of the past century, when slavery was in power in the South, the tendency in sugar growing, as in other forms of agriculture, was toward the large plantation system. The tendency was for the size of plantations to increase rather than to decrease. This, of course, made necessary an increased amount of land and capital under the control of one manager and a corresponding added responsibility in supplying and managing labor. From 1830 to 1840 sugar estates in Louisiana decreased from 691 to 668, but the increase in slaves was from 36,000 to 50,670.[20] Later the number of plantations increased rapidly. In 1853 there were over 1,500 which averaged about 200 acres of cane each.[21] As in this earlier period each plantation had its own sugar mill, the year 1853 may be considered as near the culmination in the number of sugar mills throughout the South. In a short time the war came on, with almost total annihilation of the industry, and since then the transition to the newer system of separating the manufacture of sugar from the raising of it has been going rapidly on.

The changes that took place in Louisiana are typical of those that were to be found in the other sugar producing countries. There, in this earlier period where labor, capital and land were owned by a single planter, are to be found the beginnings of the modern system. Some of the owners of the larger sugar mills did not close their plants at the end of the season, but continued throughout the year in working over the "brown sugar" of other plantations.

[20] *Quarterly Journal of Economics,* vol. xi, p. 299.

[21] Louisiana State Agricultural Society, *Thirteenth Annual Report,* p. 62 (1899); *Harper's Magazine,* vol. viii, p. 758 (1853).

Gradually it was found that it was much more economical for some to devote most of their time to the manufacture of sugar while others attended to the raising of it. The breakdown of slavery, the increasing competition of beet sugar and changes in the tariff all hastened the movement which made those planters who manufactured the cane grown by their neighbors as well as their own the pioneers in the introduction of what is now known as the "central factory system," which consists of the practical separation of the two processes of growth and manufacture of raw sugar. This development has taken different courses, varying with the conditions in the places where the central factories are found. In Louisiana, where large plantations still exist, they have developed the practice of letting out small lots, say twenty to fifty acres, to tenants, who raise the cane for the central factory. Whites and blacks have both taken part in the raising of cane sugar. The labor problem of the Hawaiian sugar plantations has been settled in much the same way by leasing land to Japanese cane growers. In both these countries this system seems to be the natural outgrowth of the ownership of large plantations and the existence of a laboring force out of which the most could be obtained by making them small proprietors of one phase of the industry. Alongside of the large plantations smaller farms have been taken up which yield their share of cane to be ground by the factory on the large plantation. In this way the large plant has brought the economies attendant upon large capitalization, while by means of railways leading in from the surrounding country the land is made to yield more by being more intensively cultivated by the small proprietor. This tendency toward fewer and better manufacturing plants in Louisiana is exemplified by the fact that in 1888-1889 776 houses were running, and they made 742,000 barrels of sugar; ten years later (1898) 347 were in operation and 1,570,000 barrels of sugar were made. In other words, less than one-half the

sugar houses in 1898 made more than twice as much sugar as was turned out ten years before. One particular illustration of this centralizing tendency may be given. In 1890, twenty-one sugar houses on Lower Terrebonne and Little Caillou Bayous worked 218 men per watch for putting cane on the carrier. In 1898 one factory ground the cane formerly ground by these twenty-one sugar houses as well as 1,900 acres of cane in addition and worked ten men per watch of the carrier.[22] These economies have been forced by the lower prices received for raw sugar. Small plants were forced to quit, and the larger ones naturally took their places.

In Cuba and Porto Rico the development has varied somewhat. In the former no census has been taken since 1899. It is not known what proportion of the plantations are very large, but at that time only 5 per cent contained 333 acres or over. This 5 per cent, of course, included a few large estates containing from 5,000 to 25,000 acres or more. At that time over 63 per cent were farms of under 8 1-6 acres. It is probable that the greater portion of the land is still divided into small farms. Where the small farms prevail the cane is raised by the owner or tenants and is transported by rail to the central factory. Sometimes the owner of the factory also owns the land, then the tenant system described as existing in Louisiana prevails. Where the sugar growing plantations are large they engage help for the season, paying the laborers wages as well as giving them food and housing. These plantations are known as "Colonias."[23] In 1902 Cuba had four large sugar estates ranging in production from 25,000 to 45,000

[22]Commissioner of Agriculture, Louisiana, *Annual Report*, 1899-90, p. 79-80.

[23]See *Cassier's Magazine* (1900), vol. 18, p. 379; *Louisiana Planter and Sugar Manufacturer* (1906), p. 362; Cuba, *Census*, 1899, p. 543, 547.

As an illustration of the economies of large-scale production the following statement is valuable:

tons of sugar each annually. Since then several companies have entered the field, buying up lands, building railroads and doing everything possible to increase the outturn of raw sugar. In Porto Rico the development has been much the same. It is said that during the last ten years the central factories have taken the place of the small plants. Many of the latter still exist, but not one in ten is running. This tendency to separate the manufacturing from the growing of raw sugar by making fewer plants and requiring larger plants undoubtedly simplifies the problem of control for the sugar refiners.

The centralization of manufacture brought great economies that justified the change. The machinery used under the old system consisted of a small mill for grinding and a set of open kettles set over a furnace. It is said that less than fifty tons of raw cane per day were ground, and the outturn was less than 100 pounds per ton. The labor cost was almost as much as that required for a modern factory handling 1,000 tons of cane a day with a product

"During my experience in this vicinity I have never known a single instance where a small colonia prospered or was able to extricate itself from debt, and this condition is owing to various causes.

"A colonia employing 300 to 400 men can be conducted more economically than one employing from 100 to 200 men. The high salaried men in the one are very nearly the same as in the other, but the small farmers with fifty to 200 acres fare much worse. They buy everything at retail 15 to 30 per cent more than the large farmers, who purchase at wholesale and receive rebate for prompt payment. A small farmer employing ten men requires a cook; a large farmer employing 300 men requires but two cooks. The small farmer is always cramped for money, has but limited credit with the central factory, and outside of that none except an occasional country storekeeper, who may consider the risk and charge him exorbitant interest. The money that ought to go for repairs goes for interest; his fields get to such low ebb that the cane no longer pays the expense for harvesting; he can obtain no money for replanting, fails to pay his rent, and the owner of the land takes possession of what remains, resulting in some other poor fellow stepping in, only to repeat his predecessor's experience." P. M. Beal, Cuba, *Census*, 1899, p. 532.

of 200 pounds of sugar per ton. Then the talent required for engineers was as great as that required to-day. The old sugar makers sometimes received $500 a month, while now a good sugar boiler can be secured for less than $100. A great saving has also been made in the amount of fuel required.[24]

§ 12. This development in the raw sugar industry seems to favor the cause of the refiners. Now they have the task of gaining control of central factories and dealing through them with the planters, where formerly they would have had the additional task of managing labor and owning large estates of sugar lands. How far they have taken advantage of their opportunities is not known. The American sugar interests in Cuba acquired since 1898 have been estimated at from $7,000,000 to $8,000,000.[25] It is said that in 1903 there were 172 Cuban sugar estates aggregating 1,500,000 acres, 330,000 of which were then or had been under cultivation and capable of producing 825,000 tons of sugar, with ninety-nine central factories, all belonging to Americans.[26] In this connection it is interesting to note the value of sugar imported into this country from Cuba as compared with the total value of all importations from that island.[27]

Year	Total Value of all imports	Value Sugar and Molasses	Per Cent
1902	$48,619,588	$30,642,848	63.2
1903	57,228,291	38,701,555	67.6
1904	74,950,992	56,181,804	74.9
1905	90,862,901	70,581,264[28]	77.6

The proportion in value of sugar imported has not been so high since 1893. In 1901, when the last $15,000,000

[24] *Gunton's Magazine*, vol. 22, p. 131.

[25] U. S. *Monthly Summary of Commerce and Finance*, May, 1905, p. 3915.

[26] U. S. *Senate Document* no. 435 (1903), 57 C., 1 S., p. 8.

[27] U. S. *Monthly Summaries of Commerce and Finance.*

[28] Eleven months.

increase of capital was made by the Trust, Mr. H. O. Havemeyer intimated that it was to be used in developing sugar interests in Cuba and Porto Rico. It is known that the Chaparra Sugar Estate in Cuba, with an area of 66,000 acres, 10,000 of which are under cultivation, is under the control of certain members of the Trust. Another large holder of American Sugar Refining stock is also interested in Cuban lands. It is believed that the large central factories in Porto Rico also operate in harmony with the Trust. This is about all that can be said about present control, and the apology of the writer for tracing briefly the changes in raw sugar production is that, if the Trust continues an active element in the sugar situation, it will find the raw sugar field one of the factors with which it must deal in strengthening its grip, and a knowledge of the situation in Cuba and other raw sugar producing countries will help to estimate the possibilities of absolute control by the Trust. The beet sugar industry, the glucose industry and the production of raw cane sugar, then, are the leading subsidiary interests of the Trust or of its stockholders working in harmony with it. It is now in order to consider the economic aspect of this organization under the control of price and profits.

Chapter VI.

CONTROL OF PRICES.

§ 1. In its attempt to control prices of sugar the Trust has had to do with both the price of raw sugar and the price of refined sugar. In the first case the problem is to determine to what extent and how the Trust has been able to fix the price of the raw product. In the determination of prices in the world market it is impossible to separate the influence of the Trust from the other factors that have a part. In 1905 the United States consumed over one-fifth of the world's production and in 1904 over one-fourth, and it has not been many years since the consumption in this country was nearly one-third of all the sugar produced in the world. But it would be very hard to measure accurately the effect of this consumption on world prices. The more definite problem, and more practical one as well, is that of determining the power of the Trust to compel lower rates from certain sources than world quotations would lead one to expect.

§ 2. As the largest producer of beet sugar, having in 1905-1906 produced a total of 6,933,649 tons out of 12,139,260 tons of the world's outturn of all kinds of sugar, Europe is undoubtedly the center of sugar production, and Hamburg,[1] in Germany, is said to be the central point for fixing prices in the world market. Of recent years the price of cane sugar has been largely determined by that of beet sugar. The hardships endured by the sugar producing dependencies of Great Britain due to the operation of the European bounty system finally led England to protest, and

[1] *Sugar Trade Journal*, Jan. 3, 1907. See also Ways and Means Committee *Report on Tariff* (1902), 57 C., 1 S., p. 253.

this brought about the Brussels Convention. The American refiners, in so far as they have purchased sugar from the European producers, have benefited by the European export bounties. This is shown by the proportion of sugar purchased from Europe during recent years. From 1896 to 1902 the importation from Europe at the four leading ports averaged 371,318 tons, with a minimum in 1898 of 206,087 tons and a maximum in the preceding year of 637,246. Why the maximum and minimum should come so closely together is probably because of tariff considerations. After 1902 the amount landed at these ports dwindled, until in 1905 the imports were but 3,671 tons. The only other foreign source that has stood so far above the average, excepting Cuba, is Java, which from 1896 to 1905 has averaged 355,055 tons per annum and which has shown no tendency to decrease. Undoubtedly the Trust has had to pay regular market prices in these sections. At least the writer has found no evidence showing that even the size of the Trust has enabled it to lessen regular prices when purchasing from these large centers.

§ 3. But in the case of Cuba, Porto Rico, Louisiana[2] and Hawaii the situation is different. The problem of transportation has made the United States the best market for the sugar crops of these countries. This has been particularly true in the past because the European import duties and bounties rendered competition with Europe on her own ground impossible. Hence, the sugar growers in these sections have been to a certain extent at the mercy of the American refiners. This has been especially true of Cuba, Louisiana and Porto Rico since the formation of the Trust. Before that time, as the refiners have stated, the producers benefited by the competition among the refiners; but when that competition ceased the refiners gained the

[2]Although small quantities of sugar are produced in the other Gulf States, yet Louisiana produces so nearly all that the situation there is true of the remaining southern production.

advantage. How great is the dependence of these countries on the refiners is shown by the per cent of their total product that is imported into the United States. In 1904-1905 the estimate of the crop of Cuba, including the home consumption, was 1,163,258 tons. The imports from Cuba at four ports of the United States the same year were 972,902 tons, or 84 per cent. Before the Brussels Convention the United States obtained practically all the product. Out of 308,866 tons exported from Cuba in 1899, 308,708 tons came to America, and in 1900-1901 out of 499,694 tons, 499,645 tons were imported into this country. The percentage has always been very high. From Hawaii the same year came 401,930 tons, or more than the estimated production. This is accounted for by the fact that the preceding year the production was considerably more than the amount imported. Thus it may be concluded that practically all the sugar produced in Hawaii, Louisiana, Cuba and Porto Rico is consumed in the United States. To control these four sources has meant much to the refiners, since in 1904, a typical year, they furnished over 68 per cent of the total consumption of the United States.

§ 4. The power of control and its limitations, as shown by evidence in reference to each of these sources, will now be considered. One condition that must be met by both the Louisiana and the Cuban producer is that the season for manufacturing is about the same in both countries. In Louisiana this season lasts from December until May, and Cuban sugar begins to enter the market a short time after the Louisiana product appears. The result is that oftentimes the price for Louisiana sugar is ¼c. lower than the same grade of sugar made in the East. The American Sugar Refining Company, it is said, makes a policy of marketing the Louisiana crop as rapidly as possible. This is done to prevent its coming into competition with the refiners' product later on. This accounts for the lower price which the producers must bear with the refiners. This

lower price of refined sugar is perhaps caused, too, by the fact that most of the sugar houses of Louisiana are prepared to refine their own sugar in case the price of raw sugar is too low. But with the price of refined sugar lowered in this way at the time they wish to sell, they find it better to take a close margin on the sale of raw sugar. After marketing the crop the price is again promptly raised to a level nearly equal to the eastern price.[3]

Mr. Jenks, in his "Trust Problem," states that the Trust has been able to depress prices in general and as compared with the prices paid by independents, perhaps 1-16c.[4] In the case of Louisiana, it has been testified that the habitual advantage of the refiners is 3-16c.[5] This represents the transportation charge on raw material to New York. But the advantage lies in the Trust's appropriating to itself the 3-16c. and refining the sugar purchased at New Orleans instead of shipping to New York. Most of the sugar refined is then marketed in the Mississippi Valley, because transportation charges render that the natural outlet of the product. As practically all the Louisiana product is refined by the Trust, this 3-16c. per pound means a large advantage on the total amount bought.

The Trust can take this advantage because, as there are no other purchasers, the producer would have to ship to the New York market and hence would lose the 3-16c. anyway. Louisiana planters are of the opinion that even the so-called small independent refineries such as Henderson's have an understanding with the Trust, which prevents competition.[6] The Trust may not get all the margin directly because of its policy of selling the Louisiana crop

[3] New York, *Investigation of Trusts*, 1896, p. 1063.

[4] Jenks, *The Trust Problem* (1901), p. 145. See also the testimony of J. H. Post, *Report Industrial Commission*, vol. i, p. 153.

[5] Ways and Means Committee, *Tariff Report*, 57 C., 1 S., p. 288 (1902).

[6] *Ibid.*, p. 263.

as rapidly as possible, but when for business reasons it makes close profits in one section it hopes to make a more than proportionate gain elsewhere.

It is valid to consider this 3-16c. per pound advantage, or a large part of it, as due to the power of the Trust, through the concerted action of its members, to throw the burden of competition on the raw sugar producers. As has been stated, this sugar is refined at New Orleans after having been purchased at a rate that would justify its being carried to New York. It has also been shown that before the organization of the Trust, owing to close margins and the necessity of large outturn from the refineries in order to realize profits, competition was more on the side of the refiners. If the southern refineries were not in harmony with the Trust, it ought to be expected that independents would put the price on raw sugar sufficiently higher than Trust prices to insure a supply of raw material for their mills, and if this should continue, the independents would secure control of the refining interests of the South. In other words, the Trust could not force producers to pay all transportation charges whether the goods were transported or not, but in order to compete with independents, the Trust would have to meet the prices set by independents, even though it involved the payment of part of the transportation charges to New York City. The price set by independents would probably not be 3-16c. higher than the present, but so much of the 3-16c. would be retained as would cover increased cost of refining in the South.

The limitations of the power of the Trust to reduce prices in Louisiana are, first, the preparation of the planters to refine sugar for themselves. If the Trust should use its power too freely, the planters could very readily become competitors by entering the refining field. Yet in this connection it has been said that sugar refined at the plantations has met with under quotations when shipped to distant points. This is said to be due to its inferior quality. The

Trust has been satisfied with the appropriation of the freight margin because it has needed the Louisiana sugars for its New Orleans refineries. There is no evidence that the Trust has gone into the production of raw sugar in Louisiana.

§ 5. As has been said before, in Cuba and Porto Rico the process of control is still in course of development. If once Cuba can be given a government that will insure protection to property against the ravages of internal conflict, this movement will probably be still further accelerated. To what extent other American companies interested in the Cuban sugar industry are in harmony with the American Sugar Refining Company cannot be determined. If the Trust can carry out its policy of gaining control of sufficient outturn in Cuba to insure it a supply of raw sugar regardless of the independents, it will have an immense advantage in bargaining with other raw sugar producers.

Just now the possibilities of control seem to be limited to transportation margins. It is said that when the Cuban wishes to sell he finds out whether he can do the best in New York or London, considering transportation. The amount he sends to New York shows where he can usually do the best. It is admitted that the Trust has been able to secure for itself 17 per cent of the 20 per cent reduction granted the Cubans by the reciprocity treaty of 1903.[7] This advantage, in addition to the admitted 1-16c. gained over other refiners because of monopoly power and large purchases, is another large source of profit to the Trust.

§ 6. Recently the control of the Hawaiian product has passed out of the hands of the Trust into that of independent refiners. How long this will last remains to be seen. But Trust control in Hawaii existed so long that it deserves some attention. During the winter of 1892-1893 contracts were made with the Hawaiian planters by the American Sugar Refining Company, with Mr. Spreckels as agent, for their

[7] *Sugar Trade Journal*, May 31, 1906.

sugar product. The contract was to continue for five years. The stipulations of the contract were that the Trust agreed to pay to the grower for sugar laid down in San Francisco the same price that Cuban sugar brought in New York City, less ¼c. a pound.[8] This arrangement with the planters was renewed from time to time with varying regulations as to the difference to be maintained between New York and San Francisco prices until the beginning of 1906. All the planters engaged in the sugar business in the islands signed the first contract because they had no other outlet. Previous to this Mr. Spreckels and Irwin & Co., his associates, had controlled 40,000 to 50,000 tons of sugar and were agents for about 20,000 more. Thus, until very recently, the Hawaiian planters have been very much at the mercy of the sugar refiners. In 1905 the Sugar Factors Company, of Honolulu, was organized with $3,000,000 capital and with the privilege of increasing to $10,000,000 for the purpose of uniting the sugar producers of the island and of freeing them from the domination of the Trust. The last contract had compelled them to sell their sugar at ⅝c. less than the prevailing New York market price and they wished to renew at a rate ⅛c. below the market level. This the Trust refused to do, and as a result the Sugar Factors Company organized and has begun to refine its own sugar. Now, if the contract is renewed, it will probably be with a single company and not with the individual planters as before.

The contract which the Trust had with the Hawaiians was a source of much profit to the refiners. It may have meant something to the producers as well, in that they knew their entire product would be purchased. But to the refiners, estimating the rate at ¼c. per pound under the first contract and ⅝c. under the later ones, it meant a large

[8] U. S. Senate Committee on Foreign Relations, *Report,* 1894, vol. i, p. 783. For later situation see *Commercial and Financial Chronicle,* vol. 79, p. 2476; also *Sugar Trade Journal,* Jan. 25, 1906.

annual income, and during the entire time in which the contract was in force, it must have been one of the important sources for profits.[9]

In these ways, then, the Trust has been able to secure an extra margin in its dealings with those countries that are shut off by distance from the world markets. This has given it an advantage on over one-half the total consumption of the United States.

§ 7. In the control of the sale of the refined product several factors may be considered. In the first place, the price is limited by the amount of import duty on refined. If the Trust were to put prices at such a level as would afford a margin of profit to foreign refiners in selling their products here, the Trust would at once have to meet that competition. The price of refined sugar in this country has accordingly been kept at such a point that comparatively little foreign refined sugar is imported. From 1883 to 1904 the annual amount of refined sugar imported has averaged less than 1½ per cent of the total amount of all sugars annually imported. From 1.02 per cent in 1903 the amount dropped to .35 per cent in 1904. So far as foreign refiners are concerned, then, the American producers are managing to keep the field very well to themselves. But the tariff limitation for sugar as for other protected products does not preclude potential foreign competition as a force preventing excessive rise in prices. It may be argued that the tariff instead of being a limitation is a means of permitting an increase in price. This is true, but the tariff is mentioned as a limitation in the sense that it is within the margin set by the tariff that the Trust must exercise its power of control.

No definite relation exists between the price of refined sugar and the annual increase in consumption. There have

[9]For testimony as to the higher prices of refined sugar in San Francisco while raw sugar was admitted free, see Ways and Means Committee *Report*, 1902, 57 C., 1 S., p. 247.

been years in which the per cent of increase in consumption per capita has been very low, and there have been several in which there has been an actual decrease. For instance, in 1889, when the average price of refined sugar was 7.64c. per pound, there was a decrease of 1.205 per cent in the per capita consumption. The price of refined was .633c. over that of the preceding year, when the per capita increase had been 4.62 per cent. Again, in 1892 there was a decrease of 1.016 per cent, but that year the price of refined was actually lower than it was the previous year. In 1895 a decrease of 3.129 per cent in per capita consumption and an increase of just .032c. in price. The following year, with a further increase in price of .380c. the decrease in consumption was .495 per cent. The last decrease in consumption was in 1905 when, with an increase in price of from 4.772c. to 5.256c., the consumption decreased 4.876 per cent.[10] It might be that, could one eliminate all other factors in the problem, it would be found that the price of sugar does have a marked influence on its consumption. It is true that in Germany and other European countries where prices have been excessively high owing to the tariff situation the per capita consumption is very low, while in the United States and Great Britain it has been comparatively high. In one instance, as has been mentioned, the increase in consumption in the United States bears a marked relation to the price of sugar. That was in 1891, when, with the lowering in price of sugar 1.48c. owing to the removal of the tariff on raw sugar, the per cent increase was 22.963. This last variation in the demand for the refiners' product shows that marked changes in price do have a specific influence on the amount consumed. It is probable that if the price of refined sugar were increased excessively lower grades would be substituted.

§ 8. The most important factor in limiting the price of

[10]Compiled from statements of consumption in *Sugar Trade Journal.*

refined sugar has been actual and potential competition. In view of the immense profits the Trust has made it is rather remarkable that more active competition has not developed. The margins show only two comparatively short periods of intense competition that the Trust has had to endure. In 1905 the margin for the refiners was again back to .978c. per pound, nearly ½c. above the estimated cost of manufacture. Such margins as now exist, however, call into existence new refineries as competitors. Once a plant is erected it becomes a source of permanent danger to the Trust because, if the Trust maintain prices at such a level as to afford profit to the independent, the latter having both the raw and the refined sugar markets open to him, can compete successfully. He has the advantage in being able to run full capacity while the Trust limits its production in order to maintain the price. There is little evidence to show that the Trust has used unfair methods in competition such as have been shown in the case of the Standard Oil Company and other trusts. This may be partly due to the fact that refined sugar from the small plant goes to a market as wide as that of the large producer. In the raw sugar market, also, there is no means of preventing the independent from buying should he wish to do so. The only requisite is that the margin be made large enough to afford him a profit.

This margin must be greater for the independent than for the Trust because, as has been shown, the Trust has an advantage of 1-16c. in general in buying, and has been able to make better terms than that in certain instances. It is also admitted that it has had about the same advantage in the sale of its product. To these advantages must be added those that come from large-scale production. These have been estimated at from 5c. to 15c. per 100 pounds.[11]

[11] See U. S. *House Document* no. 338, 54 C., 2 S., p. 630. Also Industrial Commission *Report,* vol. i, p. 100.

§ 9. Several serious hindrances to competition, however, and accordingly advantages to the Trust exist. One of these is the time and money required to erect a new refinery. Several estimates have been made that show that a 3,000 barrel refinery to-day costs from $2,000,000 to $3,000,000, and requires a like amount invested in running capital in the form of raw sugar, refined sugar unsold, etc. It also takes a year or more to complete the plant. In addition to this, the independent to-day must start in comparative ignorance of many of the processes that make sugar refining a success. The profits are made on such a close margin that those who have spent their lives in the business have an immense advantage over those who are just entering the business. Most of the new refineries erected since the organization of the Trust have been the property of men who sold out to the Trust in earlier years. The National Refinery, the Federal, the Mollenhauer and the Doscher plants are examples of this movement. How effective the difficulty of starting new refineries will continue to be remains to be seen.

Within these limits the power of consolidation has enabled the Trust to appropriate to itself margins through its power to furnish sugar after the supply of the small producer has been exhausted. It has also been able, as has been shown, to command in many instances a higher price for its product because of the certainty of its ability to supply the demand. In addition to this power in the general field, it has been permitted to monopolize the sugar market on the Pacific Coast and east to the Missouri River during a large part of its existence. To such an extent has this been true that even while getting its raw sugar from the Hawaiian Islands from ¼c. to ⅜c. cheaper than the same grades in the East, it has held to the margin of refined sugar at least 1c. higher than the eastern refined product. It has been able to do this because since 1892, when Mr. Spreckels went into the Trust, there has been practically no competi-

tion in the West. The only exception has been the growing beet sugar industry, and it has been shown that this has largely come under the control of the Trust. This monopolistic control could be the more easily retained in the western country as against invasion by independent eastern refiners because of the advantageous margins in sugar due to transportation conditions. The shipping companies carrying trade to the Orient were willing to carry sugar on their return trips practically as ballast rather than return with empty vessels. The railroads, in their turn, were then willing to carry the refined product eastward at lower rates for the same reason. This gave the western refiners the ability to enter the Mississippi Valley and sometimes actually to invade the eastern field.[12]

§ 10. Until 1902 the Trust as well as the independents made use of the wholesale grocers as a medium for an attempted regulation of price and control of outturn. This was done by the so-called "Factor plan" of selling the product. It was adopted by the sugar refiners because it had been used with success in other industries. The hard times through which the refiners had passed during the eighties were also experienced by the wholesale grocers, 30 per cent of whose entire trade was in the product of the refineries. The competition among the wholesale men was so intense with reference to this particular commodity that it often yielded no profit or was handled at an absolute loss. In certain localities, as around Boston and New York, the trade had not felt the competition as heavily as had the western and southern grocers. Finally, on the part of the grocers, a national organization was formed in June, 1888. They hoped to make some arrangement whereby the Trust could assist them in making what seemed to them a reasonable profit. Before turning to the sugar refiners for assistance, however, they had, as an

[12]U. S. Senate Committee on Foreign Relations, *Report,* (1894), vol. 1, p. 108.

association, decided about 1889 to sell sugar on a ¼c. margin. They succeeded in doing this for about a year and a half, when cutting in prices began, and as a result, in a very short time, the old competitive conditions had returned. On the failure of their own attempt the grocers went to Mr. Havemeyer and requested that the Trust institute a system whereby the grocers would be assured of a profit. After some two years of negotiating, during which the grocers, as an association, accomplished very little, the Trust initiated the local organization plan, which did not grow directly out of the Grocers' Association, but was an entirely new movement. This consisted in organizing the grocers according to zones or natural trading districts. Thus New England formed one group, with Boston as its center. New York State, parts of New Jersey and Connecticut, with New York City as a center, formed another. Philadelphia became the center of a third, San Francisco of a fourth, and so on until the whole country was brought into communication with the Trust. Until very recent years, with certain slight modifications, this system was used by independents as well as by the Trust.

The plan at first was to bill sugars to the grocers at a certain rate, and if the grocers would maintain the rate set by the refiners for three months, they at that time would be granted a rebate amounting to ⅛c. per pound. During the earlier years of the use of the factor plan, the grocers had to make affidavit that they had kept the agreement before they were entitled to the rebate. But during later years this legal statement was no longer demanded. The only penalty for not abiding by the agreement was the loss of the rebate. Later on this penalty was also dropped. In order to equalize prices between different sections of the country the Trust had published what was known as the "Equality Rate Book." By the use of this book, which contained the variations in price to be made because of varying transportation charges, the grocer could readily

determine what variation he should make from the current New York quotations.[13]

In different investigations cases have been brought out as to the way the Trust used the so-called "factor system" as a means of controlling trade. One instance is given where, in St. Louis, the Trust refused to sell, at any price near the rate made for others, to a grocer who had refused to sign the agreement.[14] The same is true of a grocer in Baltimore, Maryland.[15] During the period of severe competition with Arbuckle Brothers the refiners also tried the plan of dealing directly with the retail grocers, but they did not make a success of the venture. At the present time, though the factor plan was generally abandoned in 1902, yet the refiners still deal through the wholesale grocers in reaching the public.

In June, 1906, the National Association of Wholesale Grocers was reorganized. Whether the new organization is to have any special relation with the refiners is not known. If such were the case, the advantages would be mainly on their side because such harmony exists among the refiners that the use of the grocers as a means of controlling price or of preventing competition is unnecessary.

In summarizing the power of control which the Trust has had over the prices of sugar, it may be said that as a rule they have had an advantage in being able to secure a rate 1-16c. lower than that granted to independents in buying from the raw producer, and that they could also secure 1-16c. in the sale of the refined product. In addition to this ⅛c. special control they have been able to control prices, not only for themselves, but also for the independents in certain sources where transportation conditions make the American buyers practically the only ones. This has been true in Cuba, where both holdings of stockholders of the Trust as well as difficulty for the sugar grower in

[13]New York *Investigation of Trusts*, 1896. Also U. S. Industrial Commission *Report*, p. 55.

[14]New York *Investigation of Trusts* (1896), p. 1056.

[15]U. S. *House Document*, vol. 66, 54 C., 2 S., p. 640, 1896-7.

finding other markets has thrown competition on the side of the raw sugar salesmen. It has also been true of Louisiana and Hawaii and in refined sugar throughout the western part of the United States. With the enormous number of pounds of sugar handled by the Trust, these local advantages, amounting to from ¼c. to over 1c. a pound, are accountable for a large part of the profits gained by the Trust since its organization. The capitalization of the Trust, the cost of refining, and their relation to the margin between the price of raw sugar and the price of refined sugar remain to be considered.

Chapter VII.

CAPITALIZATION AND PROFITS.

§ 1. The plants that became a part of the original Trust and that were transferred to the American Sugar Refining Company in 1891 had a total separate capitalization of $6,940,000.[1] Under the Trust organization this capitalization was unchanged, but, as has been shown, the stock certificates representing it were transferred to the board and Trust certificates were issued that were claimed to bear no fixed relation in nominal value to the value of the stock certificates deposited. It is very probable, too, though no statements have been found concerning the matter, that if working capital were included this capitalization bore no relation to the real value of the several plants. If this be true, there is no way of determining what relation the $45,000,000 or more of Trust certificates issued before 1891 bore to the real value of the several plants, although it was at least four times the nominal value.[2] When the American Sugar Refining Company was organized the capitalization of all the companies, now combined into one, became $50,000,000. A statement issued by the company in 1891 gave the total assets as $62,845,391, of which the plants owned represented $41,250,000, sugar and supplies $7,110,549, stocks and investments $3,558,288, and miscellaneous items the remainder. In 1892, when the Philadelphia refineries were purchased, the capitalization was increased to $73,936,000, and since 1901 it has been given as $90,000,000. This last amount is the present capitalization

[1] New York *Investigation of Trusts*, 1896, p. 384.
[2] New York *Investigation Trusts*, 1888, p. 6.

of the Trust. Mr. Havemeyer estimated that 90 per cent of the sugar consumed in this country could be produced in factories costing $35,000,000. If to this were to be added say $25,000,000 necessary working capital, a necessary capitalization of $60,000,000 would result, which would leave $30,000,000 that might be called "water." But information available would not justify one in saying that even this much is "water." Evidently, as compared with many other industrial organizations, and from the point of view of cost of reproduction of plant and of working capital required, the American Sugar Refining Company has had a very conservative capitalization.[3] Neither is the capitalization excessive in view of the dividends that have been paid on both preferred and common stock for nearly twenty years. Had the capitalization been so high that much of it had paid no dividends, had it yielded an uncertain income, or had it threatened the existence of the corporation through the necessity of paying dividends on preferred stock at the expense of replacing capital, the case would have been different. But the Trust has not only paid unusually high returns both on preferred stock and on common, in good times as well as in bad, and has never found it necessary to issue the $10,000,00 in bonds authorized in 1891, but has also been able to accumulate a substantial reserve fund.

§ 2. The real estate and machinery held by the Trust in 1893, the year after the purchase of the Philadelphia refineries, was valued at $42,931,601. This increased to a maximum in 1897, when $43,140,770 was its estimated value. The following year these figures were lowered to $37,691,871, and since then have gradually decreased until, in 1905, the total was $35,156,875. This is a total decrease from 1897 of $7,983,895. The item "cash and debts receivable" has increased from $23,322,075 in 1893 to $38,659,443

[3] See appendix for value of real estate and machinery and the working capital required or represented by value of sugar, etc.

in 1905. Of course, these items vary in accordance with the state of the business, but their comparative amounts show wherein the assets of the company have made changes. The value of raw and refined sugar on hand has averaged $16,082,140. This average is lower because in 1893 and 1894 the stock of sugar was valued at $7,545,781 and $5,607,563. During the period of competition with Arbuckles the value of sugar kept on hand averaged close to $22,000,000. That was from 1897 to 1900 and included four statements of the company. In 1896 the Trust had a supply of sugar valued at $13,864,207, and in 1901 $12,248,640. This shows that during this period of competition the Trust kept on hand almost double what it maintained at other times. Investments in other companies have increased from $26,985,376 in 1893 to $54,058,547 in 1905. The increase of 1900 over 1899 was nearly $5,000,000; that of 1902 over 1900 was over $6,000,000, and the increase of the 1905 report over 1902 was $8,787,771. The total assets represent an increase from $95,159,462 in 1892 to $152,520,095 in 1904. From 1898 to 1899 the assets decreased from $118,150,877 to $102,483,537, and from 1904 to 1905 there was a decrease from $152,520,095 to $144,533,598. This was mainly in the item of sugar on hand. During the same year (1904-1905) debts decreased about $8,000,000, while the reserve increased about $200,000. On the liability account the reserve fund has increased from $7,395,214 in 1899 to $14,007,138 in 1905.[4]

Now, on the basis of an increase of assets from a stated amount of $62,845,391 in 1891 to over $144,000,000 in 1905, the question arises as to what are the real profits that have been made by the Trust. Comparison of assets and liabilities shows that the items "cash and debts receivable" on the one side and "debts" on the other have usually been very nearly equal. Where there has been a variation of many millions in favor of the debt account, as during the

[4]See Appendix.

years 1897 to 1900, the amount of cash was diminished by the greatly increased stock of sugar kept on hand. This being true, one can without great error drop out of the statement of assets the "cash and debts receivable" item. This leaves, then, for consideration the three items of real estate, sugar and investments in other companies. The item real estate has decreased in value from $43,140,770 in 1896 to $35,156,875 in 1905. The amount of sugar kept on hand, with the exception of the years 1897-1900, has remained about the same. The investments in other companies include all purchases of interest in outside refineries since the formation of the American Sugar Refining Company. The item real estate and machinery evidently does not include the Philadelphia refineries purchased in 1892, because there is no marked increase in the real estate and machinery owned by the Trust. It also includes holdings in beet sugar plants, interests in the production of raw sugar cane, etc. These investments in other companies have been provided for largely by the issue of new capital stock.[5] Only about $14,000,000 must be accounted for in some other way. Whether this has been provided out of profits of the company, or by debts incurred cannot be positively stated, but it is probable that the profits of the company have been the source of most of it. Whether the $8,000,000 decline in value of machinery and real estate owned is due to deterioration or to the sale of property cannot be determined from the facts at hand, but it is probable that the latter is the true cause.

§ 3. The advantage of combination so far as profits are concerned becomes apparent then by a comparison of the sugar situation since 1887 with that before the organization of the Trust. As has been shown, the only people who could continue business during the close competition of the

[5]The increase from $60,000,000 to $73,936,000 capitalization was coincident with the purchase of Philadelphia refineries. The disposal of the last increase of $15,000,000 is uncertain.

earlier period were those who had taken advantage of the economies due to large-scale production. The Havemeyers were the leaders in this movement. After the loss of their plant by fire in 1882 Havemeyer & Elder rebuilt their refinery, introducing the latest machinery and methods, so that by 1887 they had a capacity of 8,000 barrels a day, while many others were limited to less than 2,000. Havemeyer actually sold about 100,000 tons of refined sugar in the English market during 1887. The other refiners do not show such a successful record.

The analysis of the early history of the Trust, as made by Willett and Gray, of New York City, shows a more favorable situation for the refiners. On $6,590,000 worth of property taken over the Trust paid the first year (1888) $5,000,000 cash in dividends, which was equal to 27.5 per cent on the certificates already issued. In 1889 $5,000,000 was again paid in cash and 8 per cent issued in certificates. This was equivalent to 23.9 per cent on the certificates. In 1890 $5,000,000 was a third time distributed, which was equal to 6.4 per cent on certificates. For 1891, the year after the reorganization, with a margin of .828c., or a net profit of near .328c. per pound, the total net profits were between $8,000,000 and $9,000,000 on the refining account alone, and it was estimated that in addition to this the Trust would make an import profit of close to $1,120,000, largely on sugars from the Sandwich Islands;[6] 1892 had a net profit margin of .535c. per pound, which meant for them a total of more than 150 per cent upon necessary investment. It is estimated that in 1893, the year of financial depression, the Trust made nearly 165 per cent on necessary invest-

[6]Willett and Gray, *Analysis of Sugar Trust,* Feb., 1891. The varying per cent on certificates from year to year indicates that all certificates were not issued in 1887. For evidence that tends to show this per cent incorrect see New York *Investigation of Trusts,* 1888, p. 42. There the statement is made that in a very short time, say four months, $45,000,000 in certificates were issued.

ment.[7] On September 1, 1893, the Journal of Commerce and Commercial Bulletin, of New York, estimated that the eastern end of the Trust was making annually about $22,000,000 and that the western refineries were netting about $6,500,000. This makes an estimated total of $28,532,000 annual profit made by the Trust in its earlier years. This last estimate is, perhaps, excessive. In 1897, before the Lexow Investigating Committee in New York State, testimony was given showing that the profits since the organization of the Trust were from $12,000,000 to $14,000,000 annually.[8]

Since 1891 the preferred stocks have paid regularly 7 per cent annually. In July, 1891, the common stock paid 4 per cent; in 1892, 10½ per cent; in 1893, 21½ per cent; from 1894 to 1900, 12 per cent, and from 1901 to the present, 7 per cent. At this rate the preferred stock was paying annually from 1892 to and including 1900 $2,587,760.[9] From 1894 to 1900 the annual dividends amounted to $7,023,920. Since then they have been about $6,300,000. It has been shown already that no statements made by the Trust indicate that an excessive amount has been reserved. It seems proper to conclude, then, that so far the Trust has not been able to levy an excessive tax on the public, but that it has been able to secure for itself a constant margin of profit and has been able generally to prevent "cut-throat" competition.

§ 4. The question at once arises as to how the Trust man-

[7]For extended discussion of trust profits see U. S. Senate *Report*, no. 452, 53 C., 2 S. (1894), p. 79, *et seq.* The estimates given above seem to be unreasonably high. Even when the common stock was paying 12 per cent and preferred 7 per cent the total annual dividends declared did not exceed $7,023,920. Further, the higher dividends were paid after the ending of the competition with Spreckels and the other Philadelphia refineries. It was unlikely that the profits were higher during that period of competition than during the following period.

[8]New York *Investigation of Trusts*, 1897, p. 315.

[9]U. S. Industrial Commission *Report*, vol. i, p. 43.

aged to transform a profitless business into one that has been so profitable through the greater part of its existence. The question has been in large part answered in the chapter on Control of Price. There it was shown that the Trust gained not only an absolute advantage over independents of at least ⅛c., 1-16c. in buying and 1-16c. in selling, and on the Pacific Coast it had an exclusive margin varying from ½c. to 2c. in excess of the eastern profit, but that it also, through its control of from 70 to 90 per cent of the outturn, had the power of increasing the total margin for all producers. The maintenance of the margin between raw and refined sugar has been an advantage to the independents as well as to the Trust. It has been the policy of the independents to keep their prices as near as possible to those fixed by the American Sugar Refining Company. What has been gained from this source may be seen from the estimates of the cost of refining sugar. Mr. Camp, in an investigation by the House of Representatives in 1888, stated that before 1870 the cost of refining was about ⅞c. per pound. His estimate of cost after the formation of the Trust was about 40c. per 100 or 2-5c. per pound. The statements of others familiar with the refining industry tend to confirm the accuracy of Mr. Camp's estimate. The fact, however, that small plants usually shut down before such a low margin is reached indicates that the cost is somewhat higher. Before the Industrial Commission of 1900, Mr. Atkins, a prominent sugar refiner, estimated that 50c. a hundred was about the cost of refining. Mr. Post, in the same investigation, thought that ⅝c. per pound would cover entire cost and distribution of sugar. Messrs. Willett and Gray, editors of the Sugar Trade Journal, stated in 1906 that this last estimate is generally accepted as the most accurate. This ⅝c. per pound now covers the cost of refining, including all office expenses, brokerage, commission, etc. Any margin, then, above ⅝c. accruing to refiners in general, and in addition to this, the special

advantages of the Trust to which we shall call attention, form the basis for the profits then the refiners enjoy.

§ 5. In fact, nearly all the advantages are on the side of the large plants. In some industries the small producer has an advantage in having greater facilities in getting near his customers and consulting individual wants. In the sugar refining industry this is scarcely to be considered, because the large and small plants are to be found located side by side in the great importing centers, and they are equally distant from their customers.

§ 6. In the first place, Mr. H. O. Havemeyer gave as his opinion before the Industrial Commission that the greatest economy came from running full capacity the plants that are used. He thought that this, rather than combined skill or knowledge, accounted for the additional profits. He stated that they could do more with five refineries than they could with twenty-four before the formation of the Trust. The way the Trust managed to attain this economy is shown by the condition of the plants under its control in 1891. Of the twenty plants combined, four had been dismantled and one had burned and was not rebuilt; four had been connected with other refineries; four were closed but ready for work, and seven were working. This made virtually ten plants with a daily capacity of 1,700 barrels greater than the original twenty houses. Its method of economizing was to run certain plants all the time to their full capacity and to keep one of its best refineries ready to supply any excess in demand over the capacity of the other plants. In this way it endeavored to adjust the outturn to the demand of the market. This demand it watched very closely and tried in every possible way to avoid waste and loss from restriction of outturn. It also gained the further advantage of limiting idle capital to one plant in place of the wasteful process of shutting down all the plants part of the time. The estimated gain from this economy is as high as ⅛c. per pound. The National Sugar

Refining Company, formed in 1900, gave this item as the principal one for inducing it to combine because the companies united could attain greater economies by working together than they could by working alone.

The process of cutting down plants caused a saving in labor as well as capital. It has been estimated that during the sixties there were as high as 25,000 or 30,000 men employed. When some twenty-eight of the refining companies went out of business from 10,000 to 14,000 men were dismissed, and when the Trust was formed still more lost their places.[10] Mr. Havemeyer has estimated that in 1899 there were 10,000 men employed in New York, Boston and Philadelphia.[11] As these places represent the greater part of the sugar refining interests, there could not have been many more engaged at this occupation. With the cutting down in number the Trust has also been accused of changing the quality of its laborers. Much of the work is unskilled, so that it may have been but natural that in the course of time most of the laborers should belong to that class of foreign immigrants who must work at minimum wages. The policy of the Trust in replacing Americans by foreigners has made of minor importance the object of the earlier Trust to guard against unlawful combinations of labor. Strikes are practically unknown in the sugar refining industry.

§ 7. A third economy achieved was that which permitted the introduction of the most modern methods of refining in all the plants. One of the aims of organization was to give to the different refiners the benefit of the best knowledge of manufacture used in the different plants. In connection with this advantage is the additional one of

[10]New York *Investigation of Trusts,* 1897, p. 444. See, however, U. S. *Census Wealth and Industry,* 1870, p. 626. The U. S. report gives 4,597 hands in 59 establishments.

[11]U. S. Industrial Commission, *Report,* vol. i, p. 128.

being able to hire the best scientific and inventive talent. By this means they can still further increase the margin of profits for themselves. It seems, too, that the hope of securing a larger margin is sufficient inducement to cause the refiners to use every means to lessen the cost of production. The fact that the large corporations engage the best chemical and engineering talent obtainable is one evidence that the public has little cause to fear that the Trust will cease to be progressive.

In certain recent judicial cases it has developed that Mr. H. O. Havemeyer, Mr. L. M. Palmer and a Mr. Elder had formed a partnership in the lighterage business and had loaded the cars of the New York Central Railroad and other roads at the wharves of the Trust and transported them to the terminals of the respective roads. This firm was in existence before the rebate agreement of 1902. It received from 3c. to 4 1-5c. per 100 pounds rebate on sugar shipped to Cleveland before the agreement and 3c. per 100 pounds subsequently. It has also developed that the Trust was given special storage facilities at Cleveland for goods to be shipped on through the city.

§ 8. One more very important element entering into the margin of profits of the Sugar Trust has been that of the tariff. This has been true because the differential has directly aided the refiners and because the lowering of the tariff on raw sugar has decreased the price to the consumer and thus has increased consumption. After the formation of the Trust the first change that was made in the tariff schedule was in 1890. Raw sugars were then placed on the free list and refined sugars above No. 16 D. S. were protected by a duty of ½c. per pound. In order to offset the injurious effects of free sugar upon the cane sugar industry in this country, a bounty was placed upon the domestic product. This bounty was at the rate of 2c. per pound on sugars testing not less than 90° and 1¾c. on sugars testing between 80° and 90°. The effect of this law

was at once apparent. The average price of raw sugar at once fell from 5.451c. in 1890 to 3.863c. per pound in 1891, with a corresponding decrease in the price of refined sugar. The total consumption of sugar increased from 1,522,731 tons in 1890 to 1,872,400 tons in 1891. This was an increase of 22.96 per cent, over twice as large as the increase of any other year on record, and nearly four times as much as that of any other year excepting 1883 and 1886. This lowering of price and large increase of consumption brought immense profits to the Trust. Though the prices of both raw and refined sugars decreased, yet the margin per pound remained practically the same, and the increased consumption, amounting to nearly 350,000 tons, caused the increased profit.

It has been suggested that, perhaps, the refiners increased their profits by the delay in the purchase of raw material before the passage of the McKinley Act. The record of the imports of sugar at that time does not show any abnormal change in the amount imported.[12] There were 2,934,000,000 pounds imported in 1890 and 3,483,000,000 in 1891. This was an increase of 449,000,000 pounds, an amount not inconsistent with the increased demand. Moreover, the importations for 1890 were nearly 200,000,000 pounds above those of the preceding year. This indicates there was no extensive attempt at that time to profit by anticipating tariff changes. The relation of sugar importations to later tariff changes seems much more marked.

The bounty of 1890 undoubtedly had the effect of greatly stimulating cane sugar production throughout the South. Taking Louisiana as the typical State, one finds that in 1879 its production was 206,047,200 pounds; in 1899-1890 this had increased to 287,490,271 pounds. In 1890-1891 this amount increased to 483,489,856 pounds, almost double what it was during the preceding year. The production there has continued with varying amounts and with

[12] *Statistical Abstracts of United States* for years mentioned.

a maximum product in 1901-1902 of 720,554,948 pounds. The protection afforded to beet sugar growers has also been a powerful incentive to the development of that industry, but as the relation of the tariff to the production of raw sugar is only indirectly connected with the subject, it is not necessary to go through the arguments advanced for and against the protection of raw sugar producers.

In 1894 the bounty on raw sugar was repealed and 40 per cent *ad valorem* duties was placed on sugars below No. 16 D. S. and a differential of ⅛ per cent on sugars above that grade. This rate continued in force until 1897, when it was provided that all sugars not above No. 16 D. S. and testing not above 75° by the polariscope should pay .95c. per pound and .035c. should be added for every additional degree. Refined sugar was to pay 1.95c. per pound. In 1894 a countervailing duty of 1-10c. per pound was also placed upon sugar coming from countries that encouraged export of sugar by the bounty system. Since the passage of the Dingley Tariff Law in 1897 no changes have been made in the general tariff schedules on sugar.

In connection with the tariff changes in 1894 and 1897 reports show that in the year 1894 there was an importation of raw sugar exceeding by 553,000,000 pounds the importations for the year 1893 and exceeding by 770,000,000 pounds the import for 1895. This indicates that there was a definite attempt to anticipate the changes made in the tariff at that time. In 1897 the total importations of sugar exceeded those of 1896 by nearly 1,010,000,000 pounds and surpassed those of 1898 by 2,129,900,000 pounds. Here again the connection between tariff changes and the amount of sugar imported seems clear. The year 1903 also shows an excess of 1,221,000,000 pounds over 1902 and 478,000,000 pounds over 1904. Undoubtedly these variations in purchase of supplies had an important influence in increasing or maintaining the profits of the sugar refiners.

In addition to the general tariff schedule, particular adjustments have been made in the relations with Cuba, Hawaii, Porto Rico and the Philippine Islands. Reciprocity with Cuba and Porto Rico was introduced in 1884, when, among other things, a reduction of 50 per cent was made on Cuban and Porto Rican sugar in return for favors granted the United States. In 1890 the McKinley Act was reciprocal in nature, and in return for free sugar Spain, acting for the islands, granted further tariff concessions to this country. After the Spanish-American War the relation of the two islands with the United States differed. In April, 1900, a bill was passed levying a tariff of 15 per cent on Porto Rican sugar and other products until such time as its civil government should be able to levy sufficient tax to pay expenses. In July, 1901, the President announced that the Porto Rican tariff bill ceased to act and that free trade was established between Porto Rico and the United States. Cuba, on the other hand, in spite of the many friends among the sugar refiners, remained practically a foreign nation until 1903, when, after harmony was attained between the cane and beet sugar interests in this country, a 20 per cent reduction was granted to the Cuban planters. As has been shown, the refiners have secured the bulk of this reduction.

With Hawaii commercial reciprocity was proclaimed in June, 1875, when sugar was placed on the free list. The treaty was to have terminated at the end of seven years, but was renewed during Grover Cleveland's first administration and continued in force until the annexation of the islands to the United States. It is asserted that before the making of the treaty in 1875 the prices of refined sugar had been for several years substantially the same in San Francisco and New York, but since that time, until at least 1885, San Francisco sugar was higher in price, notwithstanding the fact that New York sugar was subject to duty. The profits resulting from tariff change, however, evidently

did not go exclusively to the refiners, because it was under the system of free sugar that the Hawaiian sugar industry underwent its remarkable growth. In 1877, shortly after the proclamation of the treaty, the total importation of sugar from Hawaii was 30,685,142 pounds. Ten years later it was 312,252,316 pounds. Since then it increased to 504,756,000 pounds in 1900, when the reciprocity treaty ceased and Hawaii came under the full control of the domestic government of the United States. The only time since 1875 that Hawaii has not been favored was during the period 1890-1894, when all foreign raw sugars were admitted free of duty. This deprived the Hawaiian product of the advantage it had enjoyed. The further provision then placing a bounty on domestic sugar placed Hawaiian sugars at a positive disadvantage. This discrimination had the influence of increasing the impetus in favor of annexation to the United States.

The leading sources for the profits of the Trust, then, have been, first, the power to maintain a reasonable margin between the prices of raw and refined sugars; second, the economy resulting from adjusting productive power to the demands of the market by so managing that no plant should remain idle, by dismissing needless labor, by introducing the best machinery, and in other ways possible to large-scale production; third, by securing definite advantages in the form of tariff protection, and, fourth, by securing advantageous terms of purchase and sale through the monopoly power of large control. The independents have profited in some of these respects as well, but the Trust has been the main recipient of whatever good things have resulted from the policy of consolidation.

Chapter VIII.

CONCLUSION.

§1. The development of the Sugar Trust, then, has been one of continual progress toward a position of greater strength in the sugar industry. It has been shown that its organization is controlling nearly all the refining interests of the country. When, during the early nineties, competition came from new refiners, and old refiners in new fields, it successfully overcame it by absorbing its competitors. Then, in its second severe struggle with cane refiners, it succeeded in bringing into harmonious action several of its competitors and in coming to a truce with its one firm opponent. This truce has lasted with profit to both parties until the present time. The National Sugar Refining Company just recently (1906) elected to its Board of Trustees several men who are trustees of the American Sugar Refining Company. The Federal Sugar Refining Company is held in harmony by strong ties of mutual ownership of stock. Abundant evidence may be found showing that the refiners in the South act in harmony with the Trust in the purchase of raw material. There has been no successful attempt in recent years to foist upon the Trust any refineries made to sell, as was the case in the erection of the Camden refinery. The only serious competition existing at present is that in the western field, where the Hawaiian planters have chosen to refine their own product rather than submit to what seemed to them an unfair contract offered by the Sugar Trust. At no time since its organization has the Trust controlled so little product that it has not been able to fix the price of sugar. Even during the struggle with Arbuckle Brothers, Havemeyer estimated that the Trust controlled 90

per cent of the output. The control at all times, either through ownership or harmonious agreement, has varied from above 70 to above 90 per cent.

In addition to the cane sugar control it has been shown that the Trust has silenced opposition to its plan on the part of beet sugar growers by buying a controlling interest in the beet sugar interests in this country. It has also indirectly a deciding influence in the glucose combination (Corn Products Company), and, as evidence shows, is extending its influence as rapidly as possible in the field of raw cane sugar production. It is also known that it has interests in the plants established for the purpose of providing it with barrels and other means of shipping its product. Whether it has invested to any extent in industrial interests outside of sugar production is not known, but under the management of Mr. H. O. Havemeyer and his able assistants its activities within that field have been eminently successful. So successful have they been, indeed, that stock which once sold as low as 50 has risen as high as 182, and for several years past has been selling, as a rule, at about 130.

At least during recent years the very size of the Trust seems to have had a deterring influence upon any prospective competitors. The time required for the erection of new plants large enough to compete with the Trust at present prices, the amount of capital required for such a project, and the increasing difficulty of manufacturing successfully without the most intimate knowledge of modern methods, has kept the Trust fairly free from new competition among cane sugar refiners. The recent Hawaiian project in California is based on the advantage of an assured field for securing raw material at prices that will bear competition. Yet the Trust managers have been farsighted enough not to follow the policy of securing the immense temporary profits at the expense of enduring long periods of profitless competition. Potential competition

has acted powerfully in protecting the public from the exorbitant charges that have been made in certain other industries.

The possibility of absolute control in either the beet or cane sugar fields of raw production, is still remote. Beet sugar is difficult to control because of the small capital required to produce successfully the refined product; because of the vast field still open for exploitation, and because the process of making raw and refined sugar is carried on in a single plant. It seems to be the Trust's policy to endure the growing beet competition because it is still such a small proportion of the total sugar industry; yet the interests of the Trust in beet sugar are continually increasing. The same is true in respect to the control of the cane output. When the Trust shall have secured sufficient interest in Cuba to be able to fix at all times the price of raw material, whatever independent producers there may be will have no other course but to sell to the Trust on its own terms, provided, however, the price is not so low as to justify them in shipping to other markets.

What the future has in store for such combinations as the Sugar Trust no one can tell. It is not within the province of this volume to predict. It seems, however, that combinations in some form or other have come to stay. Their persistence, in spite of legislation and opposition from other sources, proves that they have powers of existence not easily broken. They seem to be the logical result of the development of the modern régime of social production. If one admits their usefulness and agrees that they are in harmony with the general economic evolution of the past century, then the problem resolves itself into one of control and not of destruction; into one of protecting the public against their powers for evil while preserving for it the advantage of their powers for good. If it is concluded that they should not be destroyed, then laws, decisions and political activity tending to break up such

organizations are wasted effort and could be devoted with much more hope of success to the problem of finding out how these new factors can best be used.

If control should fail and if destruction of combinations is a reversion of the course of history, then the only logical course to pursue is for the government to become the owner of such enterprises as yield readily to large organization and tend to become monopolistic. Ownership, however, should not be tried until the attempt to control has failed.

There are many phases of the development of the sugar refining industry that have not been fully discussed, such as speculation in the stocks of sugar refining companies, the problem of labor and such organizations as the Brokers in Refined Sugar and the Wholesale Grocers' Association. Neither has any attempt been made to study the theory of the Trust movement. Such work should follow a series of descriptive accounts of other industrial movements resulting in large organizations similar to those found in the sugar industry. When the individual industries have been studied, then it will become clear why some of them yield more readily than others to successful combinations, and the solution of the problem of control will be more plain. It has been with the purpose of aiding the preliminary historical and descriptive investigations that must precede both theoretic discussion and wise practical activity in devising means of control that this volume has been written. The larger task of using the facts gathered in generalizations must be left for later students of industrial problems.

APPENDIX.

SOURCES OF SUGAR SUPPLY UNITED STATES, 1906.[1]

	Pounds.
Beet sugar not above No. 16, D. S.:	
Germany	48,548,919
Cane sugar not above No. 16, D. S.:	
United Kingdom	2,808,604
Mexico	2,196,269
Central America and British North America	924,231
Cuba	2,781,901,380
British, Danish, French West Indies and Santo Domingo	141,477,557
South America	129,959,242
Dutch East India	781,891,724
Other Asia	1,073,935
Philippine Islands	69,372,887
Total cane	3,921,605,829
Beet and cane above No. 16	9,196,782
Total imported, including Philippines	3,979,331,430
Porto Rico	410,544,618
Hawaii	746,602,637
Louisiana and other Southern States	600,751,520
United States beet	625,841,228
Total United States	2,383,740,003

[1]United States *Statistical Abstract*, 1906.

Average Prices of Raw and Refined Sugar for 1880-1905.

Year.	*Centrifugal.*	*Granulated.*	*Margin.*
1880	8.206	9.602	1.396
1881	8.251	9.667	1.416
1882	7.797	9.234	1.437
1883	7.423	8.506	1.083
1884	5.857	6.780	.923
1885	5.729	6.441	.712
1886	5.336	6.117	.781
1887	5.245	6.013	.768
1888	5.749	7.007	1.258
1889	6.433	7.640	1.207
1890	5.451	6.171	.720
1891	3.863	4.691	.828
1892	3.311	4.346	1.035
1893	3.689	4.842	1.153
1894	3.240	4.120	.880
1895	3.270	4.152	.882
1896	3.624	4.532	.908
1897	3.557	4.503	.946
1898	4.235	4.965	.730
1899	4.419	4.919	.500
1900	4.566	5.320	.754
1901	4.047	5.050	.903
1902	3.542	4.455	.913
1903	3.720	4.638	.918
1904	3.974	4.772	.798
1905	4.278	5.256	.978

Compiled from statement by Willett and Gray, Sugar Statisticians, New York. Note the narrow margin for the years 1884-1887, 1890-1891, 1898-1900.

Original Capitalization and Estimated Value of Refineries Controlled by Sugar Trust, 1894.[2]

Plant.	*Estimated Value Plant.*	*Original Capital at time taken into Trust.*
Havemeyer & Elder	$500,000	$500,000†
De Castro & Donner Company	700,000	1,500,000†
Brooklyn Sugar Refining Company	500,000	300,000†
Dick & Meyer Company	200,000	200,000†
Havemeyer Sugar Refining Company	1,000,000	1,000,000†
Matthiessen & Weichers	400,000	1,200,000†
Moller & Sierck Company	210,000	210,000†
North River Company	200,000	350,000
Oxnard Brothers Company	100,000	100,000†
Standard Company, Boston	800,000	1,000,000†
Bay State Company	440,000	450,000†
Forest City Company, Portland, Me.	150,000	300,000†
St. Louis Company	750,000	750,000†
Louisiana & Planters' Company	250,000	390,000†
American Company, San Francisco	300,000	1,000,000
Franklin Company, Philadelphia	1,000,000	5,000,000
Knight Company, Philadelphia	800,000	800,000
Baltimore Company	600,000	800,000
Total	$8,900,000	$15,650,000
Refineries closed or dismantled:		
De Castro & Donner Company	$700,000	$1,500,000
Dick & Meyer Company	200,000	200,000
Havemeyer Sugar Refining Company	1,000,000	1,000,000
Moller & Sierck Company	210,000	210,000
North River Company	200,000	350,000
Oxnard Brothers Company	100,000	100,000
St. Louis Company	750,000	750,000
Total	$3,160,000	$4,110,000
Value those operated	$5,740,000	$11,440,000
Spreckels Sugar Refining Co.*	2,000,000	2,000,000
	$7,740,000	$13,440,000

*The Spreckels Refinery was not included in the list, although it was known to have been acquired.

†Plants taken into original Trust. See New York *Investigation of Trusts*, 1897, p. 384. Here the capitalization of De Castro & Donner Company is given as $350,000; of Matthiessen & Weichers, $400,000; of Bay State Company, $225,000; St. Louis Company, $755,000; Louisiana Sugar Refining Company, $450,000; Boston Sugar Refining Company, not included in above list, $650,000.

[2]U. S. *Senate Report* (1894) no. 452, 53 C., 2 S., p. 91.

Annual Statements of the American Sugar Refining Company.

The following statements were filed with the Secretary of the Commonwealth of Massachusetts by the American Sugar Refining Company:

Assets.	*1905.*	*1904.*
Real estate and machinery	$35,156,875.69	$35,051,343.17
Cash and debts receivable	38,659,443.80	38,320,032.86
Sugar—raw, refined, etc.	16,658,731.51	24,936,523.17
Investments in other companies	54,058,547.53	54,212,196.09
Totals	$144,533,598.53	$152,520,095.29
Liabilities.		
Capital	$90,000,000.00	$90,000,000.00
Debts	40,526,459.61	48,734,384.03
Reserves balance	14,007,138.92	13,785,711.26
Totals	$144,533,598.53	$152,520,095.29

Assets.	*1903.*	*1902.*
Real estate and machinery	$35,180,057.00	$34,669,190.77
Cash and debts receivable	34,638,023.00	30,046,750.57
Sugar—raw, refined, etc.	12,338,661.00	15,842,924.35
Investments in other companies	51,986,127.00	45,270.776.30
Totals	$134,187,868.00	$125,829,641.99
Liabilities.		
Capital	$90,000,000.00	$90,000,000.00
Debts	31,922,032.00	24,958,301.81
Reserves balance	12,265,836.00	10,871,340.18
Totals	$134,187,868.00	$125,829,641.99

Assets.	*1901.*	*1900.*
Real estate and machinery	$34,328,664.00	$36,891,221.00
Cash and debts receivable	36,862,702.00	15,737,388.00
Sugar—raw, refined, etc.	12,248,640.00	22,488,799.00
Investments in other companies	39,111,883.00	35,054,171.00
Totals	$122,551,888.00	$110,171,579.00

Liabilities.		
Capital	$88,280,370.00	$73,936,000.00
Debts	24,364,027.00	27,443,372.00
Reserves balance	9,907,491.00	8,792,207.00
Totals	$122,551,888.00	$110,171,579.00

Assets.	*1899.*	*1898.*
Real estate and machinery	$36,412,652.00	$37,285,545.00
Cash and debts receivable	15,306,596.00	27,563,965.00
Sugar—raw, refined, etc.	20,340,609.00	22,243,224.00
Investments in other companies	30,423,680.00	31,058,142.00
Totals	$102,483,537.00	$118,150,877.00
Liabilities.		
Capital	$73,936,000.00	$73,936,000.00
Debts	21,152,323.00	32,987,200.00
Reserves balance	7,395,214.00	11,227,677.00
Totals	$102,483,537.00	$118,150,877.00

Assets.	*1897.*	*1896.*
Real estate and machinery	$37,691,871.00	$43,140,770.00
Cash and debts receivable	25,582,503.00	21,778,447.00
Sugar—raw, refined, etc.	22,489,384.00	13,864,207.00
Investments in other companies	30,347,656.00	28,251,435.00
Improvements	.....	6,618,003.00
Totals	$116,111,416.00	$113,652,862.00
Liabilities.		
Capital	$73,936,000.00	$73,936,000.00
Debts	31,150,525.00	27,530,942.00
Reserves balance	11,024,890.00	12,185,920.00
Totals	$116,111,416.00	$113,652,862.00

Assets.	*1895.*	*1894.*
Real estate and machinery	$43,140,709.00	$43,119,866.00
Cash and debts receivable	24,674,293.00	19,428,000.00
Sugar—raw, refined, etc.	12,462,776.00	5,607,563.00
Improvement account	6,287,232.00	26,201,599.00
Investments in other companies	25,692,000.00	10,742,456.00
Totals	$112,257,021.00	$105,099,484.00
Liabilities.		
Capital	$73,396,000.00	$73,396,000.00
Debts	25,139,765.00	21,394,000.00
Reserves balance	13,181,256.00	9,769,484.00
Totals	$112,257,021.00	$105,099,484.00

Assets.	*November 30, 1893.*	*1892.*
Real estate and machinery	$42,931,601.00	$41,250,000.00
Cash and debts receivable	23,322,075.00	14,140,299.00
Sugar—raw, refined, etc.	7,545,781.00	8,881,810.00
Improvement account	3,624,239.00	.....
Miscellaneous	671,435.00	811,904.00
Investments in other companies	26,985,376.00	30,065,349.00
Totals	$105,080,507.00	$95,159,462.00
Liabilities.		
Capital	$73,936,000.00	$73,546,000.00
Debts	22,201,407.00	15,037,462.00
Reserves balance	8,943,100.00	6,576,000.00
Totals	$105,080,507.00	$95,159,462.00

Assets.	*1891.*
Cash	$2,558,040.00
Call loans	1,196,985.00
Sugar and supplies	7,110,549.00
Outstanding accounts	2,971,642.00
Stocks and investments	3,558,288.00
Loan account	1,357,070.00
Plant	41,250,000.00
Other items	2,842,847.00
Total	$62,845,391.00

Liabilities.

Capital	$50,000,000.00
Unpaid dividend	1,879,912.00
Loans	8,570,000.00
Mortgage	180,000.00
Other items	892,476.00
Surplus	1,323,003.00
Total	$62,845,391.00

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